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INSTITUTIONAL OPTIONS FOR IMPROVED WATER QUALITY MANAGEMENT:
POLICY DIRECTION

Prepared for
U.S. Environmental Protection Agency
Region 10

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For purposes of both reports, Puget Sound quality management is defined to reflect the stated objectives of the federal Clean Water Act. It encompasses all governmental decisions and actions concerning the development and use of land and water resources of the Sound, including the control of pollutant discharges that could affect (1) the chemical, physical, or biological integrity of Puget Sound; (2) the propagation and harvest of fish, shellfish, and wildlife in or adjacent to the Sound; (3) recreation in the Sound; and (4) human health. Further, any research or investigation that generates information relevant to these matters is also considered part of Puget Sound water quality management, even though such research or investigation might have other, more general purposes as well.

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EXECUTIVE SUMMARY

This is the first of two reports analyzing institutional options for the improved management of water quality in Puget Sound. The present report examines options for improving the coordination of policy direction. A companion volume examines options for improving the coordination of investigation, research, and other activities.

For purposes of both reports, Puget Sound quality management is defined to reflect the stated objectives of the federal Clean Water Act. It encompasses all governmental decisions and actions concerning the development and use of land and water resources of the Sound, including the control of pollutant discharges, that could affect (1) the chemical, physical, or biological integrity of Puget Sound; (2) the propagation and harvest of fish, shellfish, and wildlife in, on, or adjacent to the Sound; (3) recreation in and on the Sound; and (4) human health. Further, any research or investigation that generates information relevant to these matters is also considered part of Puget Sound water quality management, even though such research or investigation might have other, more general purposes as well.

Following an introduction, Chapter 2 describes an analytical framework for developing and assessing approaches to policy coordination. This chapter defines policy coordination as the capacity of government agencies with responsibilities or interests in a particular policy problem to reach agreement on how that problem should be addressed. Ordinarily, agreement is required at four stages: (1) in identifying prioritity issues; (2) in determining what information is necessary to address each issue, through new research if necessary; (3) in developing a strategy to address the issue; and (4) in assessing the results of the strategy once implemented. This chapter also explores the reasons for policy coordination, the candidates for participation, various levels and forms of coordination, and constraints to improvement. It closes with a set of general principles to be used in assessing the need for additional coordination and developing mechanisms to provide it.

Chapter 3 examines current institutional arrangements for water quality management on Puget Sound. First, it describes the involved agencies and their missions. The two government agencies with the most general, direct responsibility for the management of Puget Sound's water quality are the U.S. Environmental Protection Agency (EPA) and the Washington Department of Ecology (WDOE). Agencies with more specific responsibilities or interests include the Corps of Engineers (permits for construction, dredging, diking, and dredge-spoil disposal), the Food and Drug Administration (seafood contamination), the National Oceanic and Atmospheric Administration (research), the U.S. Coast Guard (permitting of construction; oil spill monitoring and clean-up), the U.S. Fish and Wildlife Service (habitat protection and endangered species), the Washington Department of Fisheries (fisheries, resources, including aquaculture), the Washington Department of Game (fisheries resources), the Washington Department of Natural Resources (lands management and aquaculture), the Washington Department of Social and Health Services (public health protection, shellfish bed certification), tribal governments (fisheries resources), cities and counties (sewage treatment, land and shoreland use, public health protection), metropolitan municipal corporations (pollution abatement, sewage treatment), and port districts (harbor development).

Chapter 3 describes the ways in which these agencies coordinate policy with respect to Puget Sound water quality management. For the most part, they must coordinate on an informal, ad hoc, or tacit basis. Coordination also occurs through three more formal, but still limited mechanisms: the Puget Sound Water Quality Management Program, the State EPA Agreement, and the Puget Sound Water Quality Authority.

The Puget Sound Water Quality Management Program is an informal consortium of EPA Region 10, WDOE, and DSHS. Governed by a Steering Committee of senior managers from each of these agencies, the Program has identified several priority issues, assembled about $1 million in budgetary resources, and used these resources to commission research aimed at a better understanding of the issues.

The State-EPA Agreement is negotiated annually between EPA Region 10 and the State of Washington, represented by WDOE, DSHS, and the Washington Department of Agriculture. By its terms, the SEA aims to identify "priority environmental problems and commitments directed at resolution of those problems by each party," for a range of environmental media across the State of Washington. The SEA addresses Puget Sound water quality both as an interprogram priority and as an important component of its water quality program. In practice, the SEA appears to play a constructive but limited role in the coordination of Puget Sound water quality policy. It essentially represents a record of decisions made elsewhere rather than itself serving as a vehicle for reaching collective decisions.

The Puget Sound Water Quality Authority is a new entity established by Washington State statute. Its first members began serving in September 1983. The PSWQA consists of 21 members appointed by the Governor. Its functions are to study the impact of pollution in the Sound on the health of marine life and human populations; to study procedures for interagency coordination; and to make reports on Puget Sound water quality to federal, state, and local agencies, which may include legislative and regulatory recommendations. The Authority shows promise as a focal point for building consensus on policy with respect to the Sound's water quality through public education and public participation. Whether it can also secure agreement on priorities among the range of responsible and interested agencies, much of which are not directly represented on the authority, seems an open question.

In short, the mechanisms for policy coordination perform valuable functions, but no one institution effectively brings together all interested and responsible agencies in a coherent fashion. Therefore, additional institutional options merit consideration.

Consideration of institutional options for the coordination of policies bearing on Puget Sound water quality management need not start from scratch. Other regions, similar in varying degrees to Puget Sound, have devised mechanisms for coordinating water quality management. While other regions differ from Puget Sound in some ways--for example by involving more than one state--these approaches can serve as partial models, and the experience of the other regions as sources of insight, for the development of institutional options suited particularly to the Puget Sound's needs. To provide such comparative perspective, Chapter 4 examines five models from other regions: (1) EPA's Chesapeake Bay Program, (2) the San Francisco Bay Conservation and Development Commission, (3) the International Joint Commission (Great Lakes), (4) the Gulf Coast Waste Disposal Authority, and (5) the Delaware River Basin Commission. This chapter describes each of the five models in terms of objectives, participants, level of coordination, form of coordination, and results. In describing results, it includes attention to the six dimensions specified by EPA Region 10 in commissioning this report. These dimensions are: (1) the ability to develop an agreed upon set of long-range goals, (2) the ability to develop effective mechanisms for public involvement, (3) the ability to establish coordinated research needs, (4) the ability to bring about a focusing of interagency resources, (5) the ability to review individual agency policies, and (6) the ability to exercise regulatory/decisionmaking functions.

After describing each regional model, Chapter 4 draws some general implications with respect to each of these six criteria. In general, most of the criteria are rather difficult to meet. Of the five cases, only two seem to have achieved even partial success in establishing long-range goals. The Chesapeake Bay Program appears to have "worked up" to some agreement on long-range goals by starting with a more concrete task that could attract agency participation: allocation of federal research funds. The Gulf Coast Authority presents a different case. It has acted as a focal point for a single goal that had a lot of preexisting support, but no institutional home: protection of Galveston Bay from Houston Ship Channel pollution.

Of the five models, the two that have most effectively fostered public participation are those that largely owe their creation to preexisting public interest, which then carried over to public involvement once the institutions were established: the Chesapeake Bay Program and the San Francisco Conservation and Development Commission. At a minimum, a regional institution must command at least some real decisionmaking power if it is to entice public participation.

Establishment of a common research agenda faces the same hurdle as coordination of long-range goals: the agencies will participate only if they have a shared interest in doing so. Of the five cases, the Chesapeake Bay Program offers perhaps the only workable means of creating this interest: offering the agencies the opportunity to allocate research resources outside their own budgets.

Focusing of agency resources generally in accordance with common goals impinges on the very core of the agency's autonomy. Only a super agency, such the Gulf Coast Authority, has much chance of doing so, by partly replacing individual agencies themselves.

None of the five cases suggest that interagency institutions can easily review the policies of individual agencies. Ordinarily, the constituent agencies share a powerful interest in avoiding such reviews. Finally, to have an impact, a coordinating institution must have some decisionmaking authority--either to allocate resources or to regulate individual agencies. The marginal roles of the International Joint Commission and the Delaware River Basin Commission stem from the lack of such effective authority. In contrast, the Chesapeake Bay Program has allocated research funds; the San Francisco Bay Conservation and

Development Commission regulates shoreline use; and the Gulf Coast Authority constructs and operates waste disposal facilities.

Chapter 6 draws partly on this experience from other regions to develop six institutional options for consideration in the management of Puget Sound water quality. These options are the "evolving status quo," plus five others: an interagency management group modeled on the Columbia River Management Group, a Puget Sound program analgous to EPA's Chesapeake Bay Program, a Sound-wide waste disposal authority, a federal-state compact, and a Washington State super agency. Each of these options is presented in the same format: a brief description, an evaluation according to the six criteria used in Chapter 4 plus an additional general criterion of decisionmaking effectiveness, an assessment of implementation barriers, and a summary of evaluation of strengths and weaknesses.

The "status quo" option entails continuation of the institutional arrangements described in Chapter 3. The key elements of this option are a strengthened Puget Sound Water Quality Management Program with expanded participation and a decisionmaking agenda; a separate federal-state-local agreement negotiated annually to identify priority issues and make resource commitments; and a Puget Sound Water Quality Authority that serves to build consensus on key issues through active public education and public participation. While the difficulties or implementing this evolution are significant, its advantage lies in the possibility of incremental but steady progress over time.

A Puget Sound Interagency Management Group would be modeled in part on the Columbia River Water Management Group. It would consist of one member from each of the federal and state agencies described in

Chapter 3. It would meet monthly to exchange information among the agencies on emerging policy issues, research needs, and water quality management strategies. Chairmanship would alternate between EPA and WDOE. The Group would not have its own staff or budget, but would rely on the chairing agency for staff and logistical support. The major advantage of such a group is the relative ease and low cost of establishing it. The major disadvantage is the uncertainty that it would accomplish much beyond facilitating a general exchange of views among the agencies.

Analogous to the EPA's Chesapeake Bay Program, the Puget Sound Program would aim to develop a comprehensive understanding of the Puget Sound Ecosystem. With the advice of a management committee, co-chaired by EPA and WDOE, and representing the interested and responsible federal and state agencies, EPA would allocate a separate package of federal funds to a series of research projects addressing priority issues over a period of four to six years. The greatest strength of such a program arises from its having this attractive, concrete purpose. This mission would give the agencies a shared interest in participation. And the process would help foster a common perspective on the priority issues facing the Sound. The greatest weakness of this option is the difficulty of obtaining Congressional sanction and federal funds.

A Puget Sound Waste Disposal Authority would be modeled on the Gulf Coast Waste Disposal Authority or on Seattle Metro. Such an Authority would construct, own, and operate sewage treatment plants and interceptors for all sewage districts discharging into the Sound. It would be governed by a board or council of members representing the constituent areas within its jurisdictions. The greatest strength of such an authority would be in establishing a Sound-wide governmental unit with the resources, representation, and mission to sharply focus water quality management activities. Its main weaknesses are the difficulty of establishment (state legislation and individual local approval would be required), and possibly, operational problems.

A Puget Sound Water Quality Commission would be a federal-state compact between Washington and the United States. It would be governed by two commissioners, one each from the federal government and Washington State. The commission would develop and adopt a comprehensive Puget Sound water quality plan binding on all federal and state agencies. The Commission's approval would be required for any public or private project that could have a substantial affect on the Sound's water quality. The greatest strength of such a commission lies in tying together the federal and state governments in a single unit responsible for setting policy. Its greatest weakness is the possible inability of the Commissioners to deliver the individual government agencies--in which case policy will be no better focused than it is under the status quo.

A Puget Sound Protection Agency would be a Washington State super agency with general responsibility for all Puget Sound water quality protection missions now performed by WDOE, DSHS, and any other agencies. Its greatest strength is in rationalizing Puget Sound water quality management at the state level. Its greatest weaknesses are the very strong barriers to implementation.

Chapter 6 offers a number of general conclusions: First, the various interested and responsible agencies do need to coordinate their policies with respect to the Sound's water quality. Second, present arrangements do provide a degree of policy coordination. Third, however, present arrangements are not fully adequate. Fourth, therefore, some additional measures should be considered to involve more agencies and give the evolving process more institutional permanence.

Fifth, of the institutional options considered in Chapter 6, none is completely appropriate. A Puget Sound Interagency Management Group, while comparatively cheap and easy to establish, is unlikely to have much impact. A Puget Sound Water Quality Commission would probably be both difficult to establish and not very effective. A Puget Sound Waste Disposal Authority or a Puget Sound Water Protection Agency could improve policy coordination among local and state agencies, respectively. But they would do relatively little to improve policy coordination with and among the federal agencies. And they would be extremely difficult to implement absent a much greater sense of urgency than now exists.

Sixth, constructive evolution in the status quo is the single most attractive option. A combination of expanded participation and a stronger decisionmaking role for the Puget Sound Water Quality Management Program; an annual federal-state-local-tribal agreement analogous to the SEA but focused specifically on Puget Sound water quality; and a Puget Sound Water Quality capable of educating the public, building consensus, and providing general guidance would provide a fairly comprehensive framework for policy direction. This option would also be easier to implement than the others because its essential elements are already in place.

Seventh, a Puget Sound Program merits the most serious consideration. This option shows the most promise of drawing other agencies in creating a broader common understanding and regional perspective.

Eighth, some additional supplementary measures should also be considered. These are not full-fledged institutional options, but they could be constructive. These include: issuance of an annual State of the Sound report, by either the Puget Sound Water Quality Authority or EPA jointly with the Washington Department of Ecology; establishment of a separate State-EPA agreement for Puget Sound water quality; and sponsorship of an annual scientific symposium by the Puget Sound water quality authority or EPA jointly with WDOE.

1.0 INTRODUCTION

This is the first of two reports analyzing institutional options for the improved management of water quality in Puget Sound. The present report examines options for improving the coordination of _policy direction_. A companion volume examines options for improving the coordination of _investigation, research, and other activities_.

Four aspects of the scope of these reports merit particular mention.

First, no bright line separates policy direction from the planning and conduct of research and activities. But at least in emphasis, policy direction refers to the designation of priority issues and the development of strategies to address them, whereas investigation, research, and other activities refers to individual actions taken to implement those strategies.

Second, both reports focus on _water quality management_ in Puget Sound. Activities that are of vital importance to the life of the Sound, from research to navigation, are addressed in these reports only insofar as these activities relate to water quality management--not because these activities are not important in and of themselves, but because this analysis does have a limited and specific focus.

Third, there is no generally accepted definition of "water quality management." For purposes of these reports, Puget Sound water quality management is defined to reflect the stated objectives of the Federal Clean Water Act. It encompasses all governmental decisions and actions concerning the development and use of land and water resources of Puget Sound, including the control of pollutant discharges, that could affect

(1) the chemical, physical, or biological integrity of the Sound; (2) the propagation and harvest of fish, shellfish, and wildlife in, on, or adjacent to the Sound; (3) recreation in and on the Sound; and (4) human health. Further, any research or investigatation that generates information relevant to these matters is also considered part of Puget Sound water quality management, even though such research or investigation might have other, more general purposes as well.

Fourth, the report recognizes that Congress and the Washington Legislature have set much of the policy governing the protection of Puget Sound's water quality, primarily through the federal Clean Water Act and the state Water Pollution Control Act. Both these statutes and their implementing regulations are extremely detailed. The Environmental Protection Agency, the Washington Department of Ecology, and other governmental agencies must work within this policy framework. Still, they exercise considerable latitude in establishing priorities and targeting resources to achieve statutory goals. And the issues they identify may lead to recommendations for legislative change. In these senses, EPA, WDOE, and other agencies make policy. It is the coordination of such policy to which this report is addressed.

As sources of information, both reports rely on a combination of theoretical and case study literature on implementation and interagency coordination; existing descriptions of Puget Sound water quality management institutions; previous analyses of regional water quality management programs, both in the Sound and in other areas; official documents; and discussions with involved officials.

This report is organized as follows:

Following this introduction, Chapter 2 describes an analytical framework for developing and assessing approaches to policy coordination.

Chapter 3 examines current institutional arrangements for water quality management on Puget Sound. It describes the involved agencies and their missions and discusses the mechanisms now being used for policy coordination.

Chapter 4 provides comparative perspective for the consideration of water quality management options. It first develops a set of dimensions for comparing various models adopted elsewhere, next describes five such programs in terms of the dimensions, and then draws implications for Puget Sound.

Based on the analytic framework developed in Chapter 2, the diagnosis of existing arrangements made in Chapter 3, and the comparative experience sketched in Chapter 4, Chapter 5 describes and evaluates six institutions that might be considered for improving the policy coordination of Puget Sound water quality management. Chapter 6 offers conclusions.

2.0 THE LOGIC OF POLICY COORDINATION

Few virtues in public administration command more honor than coordination. Yet few such virtues seem more difficult to achieve: public programs almost universally provoke the complaint of insufficient coordination. In some cases, the call for better coordination is unjustified--stemming only from a vague impression that government should somehow be tidier than it ordinarily is. In many cases, however, better coordination is indeed urgently needed: the overlapping jurisdictions of multiple agencies can stifle the achievement of important governmental objectives. But even when fully justified, the quest for better coordination often falls short--in large measure because the incentives operating on individual agencies pull powerfully in the direction of autonomy. Given these difficulties, efforts to improve coordination should focus on those instances where the need is clear; proposed solutions should be tailored to the particular circumstances; and the incentives operating on the various agencies should be explicitly taken into account. In short, sensible approaches to coordination require careful analysis.

The purpose of this chapter is to develop an analytic framework for examining policy coordination of Puget Sound water quality management. This framework includes: (1) a definition of policy coordination, (2) reasons for coordination, (3) types of participants, (4) levels of coordination, (5) forms of coordination, (6) constraints to coordination, and (7) general principles.

2.1 A DEFINITION

As Eugene Bardach has observed, coordination is a slippery concept. At a minimum, one should distinguish between the coordination of agency *activities* (the subject of the companion volume) and the coordination of agency *policies* (the subject of this report).[2] For present purposes, policy coordination can be defined *as the capacity of government agencies with responsibilities or interests in a particular policy problem to reach agreement on how that problem should be addressed*.

Ordinarily, agreement is required at four stages: (1) in identifying priority issues; (2) in determining what information is necessary to address each issue, through new research if necessary; (3) in developing a strategy to address the issue; and (4) in assessing the results of the strategy once implemented. As illustrated in Figure 2.1, the policy process is in logic both sequential and iterative. While the actuality is

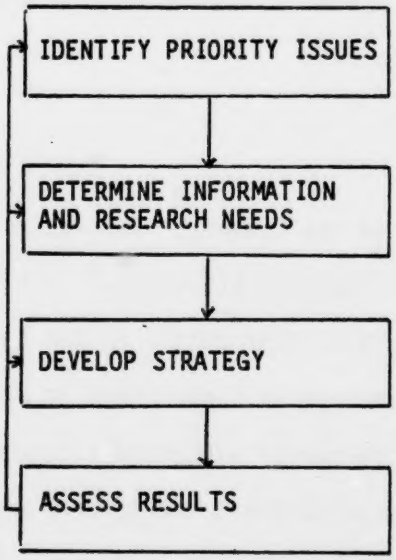

FIGURE 2.1 Logic of Policy Formulation

ordinarily a good deal messier, this logic sequence is still a useful benchmark. In formulating the objectives of options for improved coordination, it is important to be as specific as possible about the particular steps at which agreement is intended.

2.2 REASONS FOR COORDINATION

The need for policy coordination arises from the constitutional and statutory division of responsibility among government agencies according to level of government (federal, state, local), geographic jurisdiction, and functional mission. By keeping decisionmaking authority as close as possible to the citizens affected and by fostering functional expertise, such division of responsibility helps make government responsible and efficient. Inevitably, however, agencies cannot always act in isolation: the decisions and actions of one impinge on the responsibilities and interests of others. These spillover effects, and the obligation of each agency to defend its interests in the face of them, give rise to the need for policy coordination.

Negative Spillovers

In "The Tragedy of the Commons," Garrett Hardin makes eloquent use of parable to describe a familiar situation.[3] All the town's citizens have unlimited rights to graze their cattle on the town's common pasture. Ultimately, the pasture can no longer support all the cattle sent out to graze and is in some danger of withering altogether. If the citizens could collectively agree to limit the grazing rights of each, the commons would flourish and all would benefit. But the decision must be collective. No citizen's individual interest lies in unilaterally reducing his or her use of the commons: for unless everyone else does likewise, each person will be worse off than before.

Because everyone would be better off if each participated in joint restraint, the commons situation is perhaps the most poignant case of "negative spillovers." But the broader class includes all situations where decisions and actions impose harms beyond the decisionmaking unit. Such spillovers can occur between environmental media (e.g., when water pollution controls create a solid waste disposal problem), between geographic areas (e.g., when water pollutants migrate), and between missions (e.g., when pollution abatement interferes with resource management). In all such instances, some form of policy coordination may be necessary so that each agency's decisions take into account the effects on all agencies' interests.

Positive Spillovers

One can readily think of cases that are essentially mirror images of Hardin's Tradegy of the Commons. Instead of overusing a common resource, decisionmakers fail to establish some public resource in the first place. Consider a very large lake prone to spring flooding. All of the many towns bordering the lake would benefit from construction of a flood control dam. But no town has the incentive to contribute to the financing of such a dam--because even if the town did not contribute, its citizens would still benefit from the dam once constructed. Since all towns are in this same position, the dam is not built. It will go forward only if all towns can collectively agree that each will contribute.

As in the tragic commons situation, this too is a special case, in this instance of positive spillovers where decisions or actions confer benefits beyond the decisionmaking unit. Here the danger arises that beneficial decisions and actions will not be taken because each decisionmaker underestimates the benefits. Quite frequently, it is in the realm of knowledge that positive spillovers occur. When the benefits of new information beyond those to the decisionmaker are not taken into account, research and investigative activities may go underprovided. But a variety of other cases may arise as well--e.g., in the area of enforcement policy. Just as coordination facilitates the consideration of negative spillovers in policy decisions, it performs the same role in helping agencies to include the effects of positive spillovers.

Process Values

The existence of spillovers creates the need to coordinate policy for reasons of efficiency: inappropriate decisions and actions may be taken if all costs and benefits are not brought into account. But the process of coordination itself may have additional, independent value. One obvious benefit is increased fairness. The opportunity to participate in decisions that affect one's interests is deeply embedded in most people's sense of justice and fair play, and in the American political and legal tradition. Participation also fosters acceptance. Agencies called upon to implement or otherwise support policy decisions are apt to do so more enthusiastically and efficiently if they have participated in the decision itself.

2.3 PARTICIPANTS

By definition, the need for policy coordination does not arise generally, but only with reference to a particular public policy problem area. Typically, each agency's mission relates to the problem area in a distinctive way. In considering which agency should participate in coordination, and how, it may be useful to distinguish between agencies having general responsibilities and those having more specific responsibilities or interests.

First are those agencies that are generally responsible for addressing the public policy problem in question, in the sense that they have a wide variety of obligations with respect to the problem: i.e., for identifying priority issues, determining research needs, developing strategies, and assessing results.

In contrast are those agencies with narrower (but not necessarily less important) involvement. Some may be specifically responsible for addressing a particular aspect of the problem--e.g., by performing supporting research or administering a particular statute. Others may have a strong interest in how the problem is addressed. Some of these agencies are interested because their own activities may contribute to the problem. Others are interested because the means chosen to address the problem may affect their capacity to perform their own missions. Still other agencies may have both types of interests.

2.4 LEVELS OF POLICY COORDINATION

Policy coordination has been defined as the capacity of multiple agencies to reach agreement on policy. But reaching such agreement does not necessarily require each agency to share directly in the decisionmaking process. Levels of coordination other than shared decisionmaking can also facilitate such agreement.

Information Sharing

At the lowest level, agencies can share information about their sense of priorities, research needs, strategies, and results. Especially with regard to non-controversial matters, simply knowing more about each other's preferences can lead agencies to make mutual adjustments in their own programs. If continued over time, this process can lead to convergence on common policy. It can also be a first step in fostering personal and institutional relationships that lead to higher levels of coordination.

Consultation

As an intermediate level of policy coordination, agencies can advise each other as to their policy preferences. Such consultation can grow out of information sharing, as two-way exchange evolves into genuine dialogue. It still implies no obligation for any agency actually to follow the advice it receives--only to solicit such advice and to make a good faith effort to give it careful consideration in agency decisionmaking. As trust builds, officials that consult regularly may tend to give increasing weight to their counterparts' advice.

Shared Decisionmaking

Subject to legal constraints, agencies can coordinate their policies by actually sharing their decisionmaking authority. At this level of policy coordination, certain decisions take into account the preferences of the participating agencies through some explicit voting procedure, including rules for aggregating the votes such as majority rule or a requirement of unanimity. Formally, shared decisionmaking guarantees agreement: each agency is bound to accept the results. As a practical matter, absent a shared interest in reaching a decision or a procedural device that forces the agencies to decide, they may simply defer making decisions altogether.

Central Control

At least in theory, the highest level of policy coordination occurs through central control. One agency commands the legal authority to set policy and impose it on the other agencies. In practice, central control is extremely difficult to achieve, primarily because the central authority ordinarily lacks effective sanctions to deter non-compliance. While tempting as a simple means of coordination, central control generally creates only an illusion of coordination, while the agencies continue to act autonomously.

2.5 FORMS OF COORDINATION

Policy coordination at any level may be accomplished through any one of several forms, ranging from less to more formal. Typically, higher levels of coordination (such as shared decisionmaking) tend to occur through more formal mechanisms, but this tendency is not invariable. More formal approaches to coordination are also more apt to require explicit statutory authority. Four points along this spectrum are ad hoc procedures, established procedures, the interagency council, and the super agency.

Ad Hoc Procedures

At a minimum, agencies can coordinate their policies informally, using whatever procedures seem suitable at the time. Letters, phone calls, or casual meetings may do the job. Ad hoc procedures have considerable merit as a means of coordinating individual agency *activities*, as discussed in the companion volume to this report. As a separate means of coordinating *policy*, however, ad hoc procedures may be less useful. Left to their own devices, most agencies seek to avoid policy coordination absent very strong shared interests in doing so. Ad hoc procedures by definition need not be invoked, and with respect to policy coordination, usually are not. Ad hoc procedures can, however, serve as useful supplements to other forms of policy coordination.

Established Procedures

At a minimum, agencies ordinarily need to take the further step of establishing regular procedures for coordinating their policies. Examples include the negotiation of interagency agreements on policy, to be amended periodically; the establishment of a working group that holds regular meetings to explore issues of common concern; the conduct of joint public meetings; and the issuance of regular reports, either jointly or by a single agency with the opportunity for other agencies to review drafts before the report is issued. Establishing regular procedures for coordination greatly enhances the likelihood that coordination will in fact take place. By imposing deadlines and creating mutual expectations, these activities tend to induce participation especially over time as they become ingrained in agency standard operating procedures.

Interagency Council

A third form of policy coordination, ordinarily requiring new statutory authority, is the establishment of a council in which the various agencies are represented, but still retain their separate identities. Such a body could facilitate any level of coordination, from information sharing to consultation to shared decisionmaking to central control. The challenge of the interagency council is to make it a truly deliberative body, rather than a discussion group that accomplishes little or a vehicle for staking out predictable public positions. Generally, for an interagency council to work, it should be charged with producing a specific, tangible output, and its members must have a strong shared interest in reaching agreement.

Super Agency

The most drastic means of policy coordination is the establishment of a super agency. It can either result from the merger of several agencies into one or simply supersede their authority with respect to a particular category of policy decisions. The establishment of a super agency makes most sense when the interests of the individual agencies are so diverse, and the political pressures on them so intense, that they cannot reasonably be expected to reach agreement on policy. A super agency, in contrast, may better absorb these pressures because in the aggregate they may tend to offset each other. As a corollary, however, a super agency tends to be less responsible to particular concerns than individual agencies. A sometimes reasonable compromise is a hybrid form in which the super agency is subject to direction by an interagency council.

2.6 CONSTRAINTS

In logic, many if not most public policy problems would seem to create the need for policy coordination among two or more agencies. The federal system alone guarantees the involvement of federal and state jurisdictions in many instances. And the complexity of all but the most routine policy problems has tended to spawn multiple agencies at any given level of government. Yet as stated at the beginning of this chapter, lack of effective coordination is a near universal complaint about public programs. Why is policy coordination so rarely accomplished?

Much of the answer lies in the very powerful constraints operating on most agencies. At a minimum, policy coordination absorbs agency resources (time, money, personnel) that could be directed towards internal activities for which the agency is more directly accountable. Policy coordination further violates organizational imperatives that stress autonomy in decisionmaking and control of information and resources. It also can impose political costs on an agency when the resulting coordinated decision reflects compromise among competing values. What looks like sensible cooperation to the disinterested may strike the agency's political constituency as a sellout or capitulation to illegitimate interests. Finally, there may be legal constraints on an agency's freedom to share its decisionmaking authority or even to consult with other agencies. Small wonder that policy coordination is a virtue most honored in the breach.

2.7 GENERAL PRINCIPLES

There can be no magic formula that determines when greater policy coordination is appropriate, who should participate, at what level, in what form, given the applicable constraints. Nonetheless, several general principles do seem clear.

1. Define the Problem. Policy coordination can meaningfully occur only with reference to a particular policy problem. Take care to define as concretely and specifically as possible the problem that may require coordination.

2. Establish the Need. Do not view policy coordination as an end in itself. The need for considering policy coordination only arises when the responsibilities or interests of individual agencies overlap.

3. Specify Objectives. Clarify the stages of policy formulation at which agreement is sought: in identifying priority issues, establishing research needs, devising strategies, assessing results, or some combination.

4. Don't Attempt to Over-Coordinate. Overcoming the constraints to coordination is costly and difficult. Employ the fewest participants, at the lowest level, in the least formal manner consistent with taking all relevant interests into account.

5. Consider "Graded Coordination." Reserve the highest levels and most formal means of coordination for agencies with general responsibility for addressing the particular problem. Employ lower levels and less formal means of coordination for agencies with more specific responsibilities or interests in addressing the problem.

6. Be Realistic. Considerable analysis and very strong justification should support any proposal for modes of policy coordination that require constitutional or statutory change, major reorganization, abolition of existing agencies, or other drastic steps.

3.0 CURRENT INSTITUTIONAL ARRANGEMENTS

Institutional arrangements for Puget Sound water quality management follow the familiar pattern of "marble-cake federalism" characteristic of most domestic public policy problems in the United States. Responsibility is shared among federal, state, local, and tribal agencies, each charged with distinct though often overlapping missions.

This chapter briefly describes the missions of those agencies involved in Puget Sound water quality management, next examines policy coordination among these agencies, and then summarizes possible needs for improved coordination.

3.1 MISSIONS AND AGENCIES

The distinctions among agencies presented in Section 2.3 above provides a framework for describing the involved organizations. First are those agencies with general responsibility for Puget Sound water quality management. Second are those agencies whose missions give them more specific responsibilities or interests concerning Puget Sound water quality management. Table 3.1 lists the governmental agencies involved in Puget Sound water quality management, grouped according to this distinction.

Agencies With General Responsibility for Water Quality Protection

The two government agencies with the most general, direct responsibility for the management of Puget Sound water quality are the U.S. Environmental Protection Agency (EPA) and the Washington Department of Ecology (WDOE). Of course, both agencies have additional, broader

Agencies Generally Responsible for Puget Sound Water Quality Management

- Environmental Protection Agency
- Washington Department of Ecology

Agencies With More Specific Responsibilities or Interests

- Corps of Engineers
- Food and Drug Administration
- National Oceanic and Atmospheric Administration
- U.S. Coast Guard
- U.S. Fish and Wildlife Service

- Washington Department of Fisheries
- Washington Department of Game
- Washington Department of Natural Resources
- Washington Department of Social and Health Services

- Tribal Governments

- Cities and Counties
- Metropolitan Municipal Corporations
- Port Districts

TABLE 3.1 Missions and Agencies

responsibilities as well--for the protection of environmental interests beyond water quality and for the protection of areas beyond Puget Sound. Still, Puget Sound water quality management is a significant focus.

Environmental Protection Agency. EPA's general responsibility derives primarily from the Federal Water Pollution Control Act, as amended in 1972, and further amended by the Clean Water Act of 1977 and the Municipal Wastewater Treatment Construction Grant Amendments of 1981. EPA is directed to regulate the quality of the nation's navigable waters, including marine areas such as Puget Sound, by establishing effluent limitation standards, approving state water quality standards and implementation plans, setting national performance standards for individual industries, establishing effluent standards for toxic pollutants, and establishing the permitting procedures known as the National Pollutant Discharge Elimination System (NPDES). EPA is further directed to conduct investigative and research activities in support of water quality objectives. And EPA is given a developmental role through its administration of grants for state pollution control programs, construction of treatment works, and area-wide waste treatment management. EPA has used its statutory authority to delegate many water quality management activities to other agencies of the federal government and to Washington state. But it retains direct responsibility for some, such as "Section 301(h)" waivers of secondary treatment for municipalities, and ultimate responsibility for all.

An increasingly important additional source of statutory authority for EPA's mission in Puget Sound is the Comprehensive Response, Compensation, and Liability Act of 1980 (CERCLA). This Superfund statute governs remedial responses to contain the release of hazardous substances. Because such releases can threaten marine environments, their control has become part of the overall management of Puget Sound water quality.

Organizationally, the focus of EPA's Puget Sound water quality management efforts lies primarily in the Region 10 office, headquartered in Seattle, and responsible for Alaska, Idaho, and Oregon, as well as Washington State. Like other regional offices, it is responsible for accomplishing EPA's national program objectives within its region. The regional office also represents EPA in dealings with federal, state, and local agencies in the region. Within the Region 10 office, the Water Division and the Environmental Services Division play the key roles in Puget Sound water quality management, in response to direction from the regional administrator and in conjunction with the Assistant Administrators for Water, Solid Waste and Emergency Response, and Research and Development at EPA headquarters.

EPA Region 10 also maintains subregional operations offices in each of the four states comprising the region. These offices work closely with state environmental officials, primarily in addressing day-to-day business. Thus EPA's Washington Operations office in Olympia also participates in Puget Sound water quality management.

Washington Department of Ecology. The Washington Department of Ecology (WDOE) was established to manage and develop the state's "air and water resources in an orderly, efficient, and effective manner and to carry out a coordinated program of pollution control involving these and related land resources." Like EPA, WDOE is charged with protecting a wide range of environmental interests, including water quality. A close linkage between the responsibilities of EPA and WDOE derives from EPA's practice of delegating the administration of certain national programs to WDOE, subject to EPA's oversight. Delegated programs that are particularly pertinent to Puget Sound water quality management include the National Pollutant Discharge Elimination System (NPDES) as applied to non-federal facilities and the wastewater construction grants program. WDOE has also applied to EPA for authority to administer the NPDES program for federal facilities and the industrial pre-treatment program. WDOE has determined that assumption of complete responsibility for administering the "Section 404" dredge permitting system is infeasible at this time. In addition to these responsibilities for administering federal programs, WDOE's Puget Sound water quality mission includes duties derived from state law, such as the establishment of water quality standards to protect beneficial uses and the conduct of marine pollution studies.

Organizationally, the management structure of WDOE essentially parallels that of EPA. For purposes of Puget Sound water quality management, the key subunits are the Office of Water Quality Management, the Shorelands Division in the Office of Water and Land Resources, and the Office of Operations and Enforcement. WDOE also maintains regional offices, which play important roles in permitting and enforcement.

Agencies with Specific Responsibilities and Interests

While EPA and WDOE have general responsibility for managing water quality in Puget Sound, a number of other federal, state, and local agencies have critical, specific responsibilities and interests, generally deriving from their other, broader missions. Such agencies may be charged with some specific aspect of water quality management, such as issusing a particular type of permit. They may engage in developmental or regulatory activities that potentially affect Puget Sound water quality through associated pollutant loadings. They may be charged with promoting, managing, or regulating beneficial uses of the Sound that depend on water quality. Or they may perform investigations and research that has implications for managing the Sound's water quality. In many cases, a given agency's involvement extends to several of these aspects.

Corps of Engineers. The primary domestic mission of the U.S. Army Corps of Engineers is the construction, operation, and maintenance of public works. In Puget Sound, this responsibility mainly involves the support of ports and navigation--for example, through the maintenance of navigation channels. In addition, under a memorandum of understanding with EPA, the Corps participates in the regulation of water quality by administering permits under Section 10 of the Rivers and Harbors Act for construction in or over the Sound, and Clean Water Act Section 404 permits for dredging, diking, and dredge spoil disposal. In addition, the Corps engages in limited research and investigation activities in support of these permitting responsibilities. All of these functions are carried out by the Corps' Seattle District Office.

Food and Drug Administration. Among FDA's duties is the responsibility for regulating impurities and contaminants in seafoods. Depending on the type of seafood, FDA either establishes regulatory requirements limiting contaminants by product or provides voluntary guidance on appropriate levels to state and local government and to industry. Compliance with requirements or acceptance of guidance may in turn lead to the adoption of regulatory requirements that affect water quality.

National Oceanic and Atmospheric Administration. Part of the U.S. Department of Commerce, NOAA performs a variety of functions ranging from weather prediction to oceanic surveys. Among NOAA's diverse programs, three contribute to the management of Puget Sound water quality through the conduct of research, field investigations, and laboratory studies pertaining to the chemical, physical, and biological properties of the Sound and man's impact on them. First, the Ocean Assessment Division within the National Oceans Service conducts research on marine ecology, as part of what was formerly the Marine Eco-Systems Analysis (MESA) program. This program has provided funding for a number of substantial studies directed specifically at understanding the impact of man's activities on the Puget Sound ecosystem. Second, the National Marine Fisheries Service (NMFS) is responsible for protecting certain forms of marine life and managing certain fisheries. Accordingly, NMFS conducts research pertaining to the effects of marine pollution on fisheries and also comments on certain permit applications to ensure that this marine life is adequately protected. Third, NOAA's Environmental Research Laboratories have conducted still additional research bearing on physical chemistry aspects of Puget Sound water quality.

U.S. Coast Guard. The Coast Guard's primary mission on Puget Sound is to support navigation and maritime safety. In particular, it maintains a system of navigational aids, establishes shipping lanes, monitors the movement of large ships, and regulates the shipment of dangerous cargos.

The Coast Guard also has several specific responsibilities in support of water quality. These include the issuance of permits for the construction of bridges, dams, dikes, and causeways under Section 9 of the Rivers and Harbors Act and the responsibility for containing oil spills through monitoring and clean-up activities. The Coast Guard unit that carries out these missions on Puget Sound is the 13th District, based in Seattle.

U.S. Fish and Wildlife Service. The U.S. Fish and Wildlife Service in the Department of the Interior serves as the focal point for federal efforts to conserve, protect, and enhance fish and wildlife and their habitats. Along with the National Marine Fisheries Service of NOAA, the Fish and Wildlife Service administers the Endangered Species Act, which gives the Service a particular interest in the impact of Puget Sound water quality on endangered species.

Washington Department of Fisheries. The Washington Department of Fisheries is responsible for managing sport salmon and all commercial fisheries resources (including shellfish resources) in Puget Sound. Obviously, the health of these resources depends heavily on water quality. Accordingly, the Department of Fisheries conducts extensive investigative research related to water quality impacts on these resources. It also plays a limited regulatory role in providing advice to EPA and the Department of Ecology on the impact of water quality on fisheries.

Washington Department of Game. Among many other things, the Washington Department of Game is responsible for managing non-salmon sport fish species in Puget Sound. Its interest in water quality is thus analogous to the Department of Fisheries and its role is essentially parallel.

Washington Department of Natural Resources. The Department, through the Division of Marine Land Management, manages state-owned shorelands, tidelands, and beds of navigable waters. This includes leasing of state land for the placement of structures for aquaculture and other activities, sale of geoducks and other clams from state-owned land, and permission to dispose of dredge material and other wastes on state-owned land. In addition, the Department fosters aquaculture through funding research and development work and preferential leases. Finally, the Department manages approximately 300 miles of state-owned tidelands that are available for public recreation, including the collecting of shellfish.

Washington Department of Social and Health Services. DSHS performs a wide array of missions related to the provision of social services and the protection of public health. The duty of DSHS to protect public health gives it a general, vital interest in Puget Sound water quality. Local health departments also share in the responsibilities to protect public health. In addition, DSHS has the specific responsibility for certifying that water quality criteria are met in all commercial shellfish growing areas, which is accomplished by conducting intensive water quality investigations and shoreline surveys.

Tribal Governments. Federal judicial decisions over the past decade and a half have established the right of Washington Indian tribes to 50% of treaty area salmon and steelhead runs. These decisions give tribal governments a strong interest in Puget Sound water quality, an interest subsequently affirmed by another court decision establishing their right to protect these resources from any government-approved activity threatening them. Although the scope of this right is not yet entirely clear, tribal governments clearly have an extremely important role to play in water quality management by virtue of their interests in fisheries resources. Several Puget Sound tribes have also begun commercial aquaculture developments.

Cities and Counties. Units of local government are major users of the Sound through their construction and operation of sewage treatment facilities. The Sound's water quality constrains the ability of these agencies to add additional facilities and partly determines the level of treatment, pre-treatment, or both that may be necessary. Cities and counties also can affect Puget Sound water quality through their regulation of land and shoreline use, both through zoning and through the administration of the Washington Shoreline Management Act, which requires both shoreline management planning and the permitting of individual uses consistent with the plan. At the same time, water quality is a valuable amenity to those communities bordering on the Sound. Further, county health departments have front-line responsibility for addressing public health problems posed by marine pollution within the county.

Metropolitan Municipal Corporations. The Municipality of Metropolitan Seattle (Metro) is responsible for areawide water quality planning and pollution abatement within its boundaries. In support of this mission, Metro operates five sewage treatment plants for sixteen cities and local sewer districts. By virture of this role as sewage treatment "wholesaler," Metro is analogous to cities and counties in having a strong interest in the ability of the Sound to accept pollution loadings. Metro also generates information through regular monitoring and analysis of discharge effects on the Sound. The agency further conducts toxic control programs and long-range planning--for example, its salmon enhancement and milfoil control projects. Metro has reached the final stages of a three-year study to identify toxic materials in local waters, and is implementing parts of a long-range plan to use sludge, chiefly as a soil conditioner and/or fertilizer in non-agricultural areas. The Snohomish Metropolitan Corporation (Snomet) plays a similar role in Snohomish County.

Port Districts. The state's ports determine the level and location of ocean-going shipping on Puget Sound. The port districts can affect water quality through their planning and development of harbor area transportation and industrial support facilities.

3.2 POLICY COORDINATION IN PRACTICE

In principle, the need for policy coordination in the management of Puget Sound water quality seems strong. The Sound is a classic, tangible instance of the commons. Its diverse marine environment supports a wide array of commercial, recreational, and governmental uses from fishing to shipping to waste disposal. But these uses are interdependent. And the Sound is a finite, even fragile, resource. Its continued vitality requires collective understandng of ecological processes and collective restraint in its use. Thus, the federal, state, and local agencies with responsibilities or interests in the management of Puget Sound water quality need to coordinate policy. In particular, they need to reach agreement on (1) priority issues, (2) information and research needs, (3) water quality management strategies, and (4) assessments of the results.

In practice, the 10 federal and state agencies, the 12 counties, 28 incorporated cities, 25 port districts, and 12 tribal governments with responsibilities or interests in the management of the Sound's water quality lack a unifying institution for policy coordination. Rather, they must coordinate on an informal, ad hoc, or tacit basis or rely on three more formal but still limited coordinating mechanisms: the Puget Sound Water Quality Management Program, the State-EPA Agreement, and the Puget Sound Water Quality Authority.

Puget Sound Water Quality Management Program

Initiated in the fall of 1982, the Puget Sound Water Quality Management Program is an evolving, largely informal collaboration between EPA Region 10 and the Washington Department of Ecology. Subject to direction by a Steering Committee consisting of senior managers in the two agencies, staff within EPA and WDOE assigned to support the Program identify priority issues and direct resources to achieve a better understanding of those issues.

Objectives. The Puget Sound Water Quality Management Program was established primarily in response to growing evidence that serious water quality problems exist in certain local areas of the Sound and the realization that the potential longer term effects of continuing waste discharges on the quality of Puget Sound as a whole are not well understood. The Program is intended to target specific problems for priority attention and to focus the resources and attention of executive management in WDOE and EPA on addressing those problems.

Participants. Program direction is provided by the Steering Committee. Primarily, it consists of senior managers from EPA Region 10 and WDOE. EPA members initially included the Deputy Regional Administrator, the Water Division Director, the Environmental Services Division Director, the Washington Operations Office Director, and the Air and Waste Management Division Director. Their counterparts from WDOE included the Deputy Director, the Assistant Director for Water Programs, and the Assistant Director for Land Programs, which then had responsibility for solid and hazardous waste. As the Steering Committee evolved, the solid waste officials from both EPA and WDOE phased out. To ensure adequate attention to public health matters, the Washington Department of Social and Health Services Division Director for Health joined the Committee. The Program does not maintain its own independent staff, per se. However, the Puget Sound Coordinator in WDOE works full time on these issues and the Director of Environmental Services at EPA Region 10 puts in a good deal of his time.

Level of Coordination. The Puget Sound Water Quality Management Program provides a means of consultation among WDOE, DSHS, and EPA Region 10. The two staff members from the agencies work closely together to identify issues, study needs, assemble resources, and consult with EPA Headquarters. The Steering Committee gives direction to these efforts. Essentially, the staff members develop proposals and submit them to the Committee for review and concurrence.

Form of Coordination. The Steering Committee serves as an informal interagency council. It lacks a formal charter with voting rules and the like. It meets about once a month and operates on a consensus basis. The two assigned staff take responsibility for identifying the need for a meeting, preparing the agenda, and drawing on individuals within each agency for further staff support as needed. The overall Program is an evolving, informal institution, based on close personal relationships and a converging set of shared expectations.

Results. The Program has identified four priority issues requiring attention: bacterial contamination of shellfish beds; toxic contamination of urban/industrial embayments; longer term, cumulative effects of pollutant loadings on the Sound; and the management structure for Puget Sound water quality. The Program has assembled about $1,000,000 in budgetary resources (from EPA Headquarters, state general revenues, and federal grants), which have been used to commission several research projects addressing these issues. The Steering Committee has had some success in changing the sense of priorities among their agencies as to permitting, field investigations, and monitoring. And the staff have also worked with other agencies such as NOAA to help secure better fit between their research and Program priorities, also with some success.

State-EPA Agreement

The "SEA" is an agreement between EPA Region 10 and the State of Washington, represented by WDOE, DSHS, and the Washington Department of Agriculture. Negotiated annually since 1979, it provides another mechanism for coordinating Puget Sound water quality policy.

Objectives. By its terms, the SEA aims to identify "priority environmental problems and commitments directed at resolution of those problems by each party." It does so by identifying about a dozen "interprogram priorities" and by describing in some detail major environmental programs. Besides Water Quality, these major programs include Drinking Water, Hazardous Waste Management, Air Quality, and Pesticides. The SEA addresses Puget Sound water quality both as an interprogram priority and as an important component of the Water Quality Program. Within these two rubrics, priorities for study and action are identified. (At a finer level of detail, the SEA also serves to coordinate agency activities in support of policy priorities. This aspect of the SEA is discussed in the companion report.)

Participants. The SEA is intended to be a federal-state partnership. The federal partner is EPA Region 10. Participation on the state side is more complicated. Nominally, the State of Washington is a party. But the Agreement is signed by the directors of WDOE, WDSHS, and WDA. Some effort is made to consult with the other agencies. And control of some funds by WDOE provides leverage in eliciting their cooperation. Nonetheless, for purposes of Puget Sound water quality management, the SEA is essentially an EPA-WDOE exercise.

Level of Coordination. The SEA provides a vehicle for information sharing and consultation between EPA and WDOE. In form, the agreement represents the results of shared decisionmaking. EPA and WDOE agree on priorities and make commitments for addressing them. But on closer inspection, the commitments look more like aspirations. The parties promise only "best efforts" in the performance of commitments; have limited recourse (EPA's option of witholding some grant funds) in the event of non-performance; and condition their commitments on the availability of state and federal appropriations.

Form of Coordination. Annual negotiation of the SEA provides an established procedure for setting priorities and making commitments. While this procedure is not itself embodied in written rules, six years' experience in negotiating a document that necessarily builds on the previous year's has created fairly stable routines.

Results. The SEA appears to play a constructive though limited role in the coordination of Puget Sound water quality policy. Because it is negotiated by the senior managers of EPA Region 10 and WDOE and because it covers such a broad range of environmental media across the entire state, the SEA necessarily treats any one priority area in a very brief and general way. Thus the 1984 SEA Executive Document devotes about three quarters of a page to Puget Sound water quality, by summarizing the 1984 Puget Sound Water Quality Management Program as approved by the Steering Committee. The SEA essentially represents a record of decisions made elsewhere rather than itself serving as a vehicle for reaching collective decisions.

Puget Sound Water Quality Authority

The Puget Sound Water Quality Authority is a new entity established by Washington State statute. Its first members were appointed in September 1983. Because it is so new, the PSWQA must be examined primarily in terms of its design, although the Authority's initial meetings do provide some indication of the direction its members wish to take.

Objectives. The statute creating the PSWQA does not explicitly state its objectives. Rather, the Authority's functions alone are identified:

to study the impact of pollution in the Sound on the health of marine life and human populations; to study procedures for interagency coordination; and to make reports on Puget Sound water quality to federal, state, and local agencies, which may include legislative and regulatory recommendations. Senator Phil Talmadge, prime sponsor of the enabling legislation in the Senate, has described the Authority as intended to be "an independent body representing diverse interests and backgrounds to focus on Puget sound as a unique resource," which should develop its own goals, objectives, and recommendations.

Participation. The PSWQA consists of 21 members appointed by the Governor. In making appointments, the Governor is directed to seek "representation of all interested parties, including federal, state, and local government, environmental and health agencies, business, citizens groups such as environmental and public health groups, and the fisheries and tourism industries." While the Authority's enabling statute refers to "representation" of interested parties, Authority members do not "represent" their agencies or employers in the sense of directly speaking for them. Rather, the members are "representative" of a broad range of views and backgrounds. Of the initial appointees, 10 are from government, 6 from citizen groups, and 5 from business. Thus a majority of the Authority's members are non-governmental. Of the government agencies with officials serving on the Authority, most are agencies whose interest in water quality arises primarily through use: cities, counties, port districts, Metro. There are no members from state agencies with resource management interests. Only one member is employed by a federal agency (NOAA).

Level of Coordination. By statute, the PSWQA commands fairly limited powers: to commission studies and to make reports that include recommendations. The Authority has no direct appropriation for the support of its activities; instead the Legislature earmarked $85,000 of WDOE's biennial appropriation for use by the Authority. Insofar as the Authority acts as a vehicle for interagency coordination, it does so by information sharing and consultation. While the PSWQA's conclusions may carry some weight in the decisionmaking of agencies, they are not binding.

Form of Coordination. In form, the Authority might seem to resemble an interagency council. In practice, the Governor's choice of appointments has made the Authority a general citizens' advisory group, rather than a vehicle for interagency coordination.

Results. Because the Puget Sound Water Quality Authority is but a few months old, one cannot reasonably expect concrete results. The Council itself has decided to spent its first several months in self-education. However, the way the Authority has chosen to organize itself provides clues as to its likely capacity for action. At least during its first year the Authority will operate through three standing committees (Administration and Public Involvement; Status of Water Quality; and Impacts of Water Quality); special committees as needed (beginning with two committees, one on Marine Waivers and another on Other Regional Water Quality Management Approaches); and a coordinating committee. The Council expects to issue a report presenting the results of the deliberations of each of its standing committees by September, 1984.

The Puget Sound Water Quality Authority shows promise as a focal point for wide-ranging discussions on policy with respect to the Sound's water quality. Whether it can also secure agreement on priorities among the range of responsible and interested agencies seems an open question at this point. If the Authority can develop sufficient stature--in particular, clout with the state legislature--through the quality of its reports and cultivation of a broad constituency, it may grow into performance of this function.

Evaluation

These arrangements can be evaluated at two levels: (1) for their general capacity to facilitate agreement on key issues, information and research needs, management strategies, and results assessment, and (2) for their capacity to address particular issues.

At the first, more abstract level, present arrangements seem partially effective. The Puget Sound Water Quality Management Program has identified four key issues and associated research needs, which in turn are reflected in the State-EPA Agreement. However, it remains uncertain whether the federal, state, and local agencies that do not participate in either the Program or the SEA would agree that these are in fact the most important issues, that they have been appropriately defined, and that needed information and research have been appropriately identified and responsibilities allocated. It is also uncertain whether the results of the commissioned research will lead to agreement on appropriate management strategies, and later, on interpretation of the results.

At the second, more concrete level, the system does appear likely to do a reasonable job of the issues actually chosen as priorities, as a review of the three more "technical" issues indicates.

Shellfish Bed Contamination. The presence of fecal coliforms in the waters of Puget Sound has led to the decertification of commercial shellfish beds. The main source of this bacteriological contamination is human and animal wastes. Fecal coliforms are both contaminants themselves and indicators of the probable presence of other contaminants. Because shellfish beds are not located in urban embayment areas, there are few if any clearly identifiable point sources of contaminants. Rather, the problem stems from nonpoint sources of pollution. The two leading contributors are large and small agricultural operations and residential developments. Contamination occurs when runoff from these lands and on-site waste disposal systems enters streams in Puget Sound's watershed. Such diffuse sources do not lend themselves well to control through treatment requirements; the preferred solution is to prevent such pollution from entering the watershed at all. Agricultural waste control requirements, control of development, and stringent on-site waste treatment standards appear to be the most workable options.

Addressing the problem of shellfish bed contamination will first require common understanding of pollution sources, pathways to the Sound, and impacts on shellfish, and then agreement on an appropriate control strategy. At a minimum this implies the need for coordination among counties (knowledge of land use and responsibility for control), WDOE (knowledge of pollution sources and pathways), and WDSHS (knowledge of shellfish impacts and responsibility for certification). Plans for addressing the problem appear to involve an appropriate range of participants. In one area (Burley Lagoon and Minter Bay) they call for water quality investigations by WDOE to support basin planning by Pierce and Kitsap counties. In another area (Henderson and Eld inlets), Thurston County is taking responsibility for determining contamination levels, identifying upland sources, and developing a program of corrective actions. However, while use of the SEA to allocate water quality management planning funds under Section 205 of the Clean Water Act provides an incentive for counties to participate, one cannot be confident that they will always be appropriately involved in identifying and addressing water quality problems in which they have a responsibility or interest.

Toxic Contamination of Urban Embayments. The presence of many toxic, persistent, and bioaccumulative chemicals, both organic and inorganic, has been documented in many areas of the Sound. The highest concentrations of these contaminants have been found in bottom sediments and tissues of bottom-dwelling fish and shellfish in bays near large urban and industrial centers. At present, there is substantial uncertainty about the sources of this pollution. Past disposal of toxic waste directly into the Sound, as well as municipal and industrial discharge, are probably the main sources. At least in the case of municipal and industrial discharge, these sources may be continuing. Dredging operations may also contribute to toxic pollution--both through the disposal of dredged material containing toxic contaminants, and through the dredging itself, which may stir up toxicants and thereby introduce them into the water column. Still further toxic pollution may derive from nonpoint sources of herbicides, pesticides, and other pollutants: runoff from urban areas, discharge from storm drains that collect highway runoff, and runoff from parks, roadways, and silviculture operations. Uncertainty about the sources of toxic pollution is paralleled by uncertainty about which chemicals are the most significant contaminants and how marine life and public health are affected.

Resolving the uncertainties about the nature, sources, and effects of the toxic contamination of urban/industrial embayments and then developing control strategies will require agreement among virtually the entire range of agencies with responsibilities and interests in water quality management. At a minimum, participants should include EPA and WDOE (general water quality protection responsibilities, research and investigation); the Corps of Engineers (dredging); NOAA (research); DSHS (public health), cities, counties, and Metro (municipal discharges and land use control); and probably the state's resource management agencies as well.

The problem seems to be too broad to address wholly within the framework of the Puget Sound Water Quality Management Program or the SEA. Present plans for addressing the problem consists of a series of studies, primarily by WDOE and EPA that will seek to define the problem, identify sources, and develop criteria. As a core of activity to address the problem, this approach seems sensible. But the present arrangements may not fully integrate contributions from NOAA or from DSHS. And the incomplete involvement of cities, counties, and Metro early in the process, other than through hearings and comments, may complicate the development of control strategies later. In short, unless present arrangements are supplemented, they may be overextended in attempting to address the particular problem.

Longer Term Effects. The press of statutory deadlines and permit applications requires regulatory agencies responsible for protecting Puget Sound's water quality to make a number of decisions based on best current information. However, legitimate questions are being raised about the difficulty of predicting the long-term and area-wide impacts of immediate regulatory decisions, given imperfect knowledge about the relationships between pollutant loadings and adverse impacts on beneficial uses. Particular gaps in present knowledge include the linkages between contaminant input and their eventual distribution in the physical environment, as well as the processes that cause uptake of contaminants by marine biota and the ultimate effects on the biota themselves and on other beneficial uses of the Sound.

To address the problem of long-term effects will require integration of a great deal of disparate research results to identify particular gaps in knowledge and then agreement on a research agenda to fill the gaps. Close coordination among all agencies and other institutions performing research on Puget Sound water quality will be required. This problem has been identified as a priority issue by the Puget Sound Water Quality Management Program and appears in the 1984 SEA. But unless a way is found to integrate the knowledge of other agencies, this problem may not be fully addressed.

Summary. This brief review of present arrangements' approach to three priority problems suggest that they are incomplete as instruments of policy coordination. For problems in which only a few agencies beyond WDOE and EPA have interests or responsibilities they probably work fairly well. For problems implicating a wider range of interests and responsibilities they are probably overtaxed. Moreover, present arrangements may be further prone to "Type 3" errors--failing to identify problems as a priority at all, if peripheral to WDOE's or EPA's concerns.

4.0 POLICY COORDINATION IN COMPARATIVE PERSPECTIVE

Consideration of institutional options for the coordination of policies bearing on Puget Sound Water Quality management need not start from scratch. Other regions, similar in varying degrees to Puget Sound, have devised mechanisms for coordinating water quality management. Of course, no region presents circumstances completely analogous to Puget Sound. In particular, most bodies of water that have spawned regional management approaches are bounded by more than one state, unlike the Sound. With this difference in mind, these approaches can serve as partial models, and the experience of the other regions as sources of insight, for the development of institutional options suited particularly to Puget Sound's needs.

The following models for policy level coordination were selected for examination: (1) EPA's Chesapeake Bay Program, (2) the San Francisco Bay Conservation and Development Commission, (3) the International Joint Commission (Great Lakes), (4) the Gulf Coast Waste Disposal Authority, and (5) the Delaware River Basin Commission.

To describe each regional approach, this chapter adopts the same basic format used in the previous chapter to describe the Puget Sound Water Quality Program, the SEA, and the Puget Sound Water Quality Authority. It describes each approach in terms of objectives, participants, level of coordination, form of coordination, and results. In describing results, it includes particular attention to the six dimensions specified by EPA Region 10 in commissioning this report. These dimensions are:

1. Long-Range Goals: ability to develop an agreed upon set of problem and issue definitions and priorities on an interagency basis.

2. Public Involvement: ability to develop effective mechanisms for public education and participation in decisionmaking.

3. Coordinated Research Needs: ability to establish a clear set of coordinated investigation and research needs to support program development and management needs and targeted problems and issues.

4. Focusing of Resources: ability to bring about coordination and the focusing of interagency resources on targeted problems, issues, and priorities.

5. Review of Individual Agency Policies: ability to provide mechanisms and procedures for coordinated review and evaluation of existing and proposed policies of individual agencies as related to achieving longer-range goals.

6. Regulatory/decisionmaking Functions: ability to function as a regulatory body with decisionmaking responsibilities.

A brief summary of each program draws implications for policy coordination in general.

4.1 EPA CHESAPEAKE BAY PROGRAM

EPA established the Chesapeake Bay Program in response to federal legislation of 1976 that authorized a five-year $25 million study of the Bay.[4] Twice extended by a year, the study phase of the Program drew to completion in 1983. Both the process employed and the recommendations developed seem destined to decisively influence the management of water quality in Chesapeake Bay for some time to come.

Objectives

The primary objective of the Chesapeake Bay Program is the development of a comprehensive understanding of the Bay as an ecosystem. More specifically, EPA was directed to assess water quality problems in the Bay, to establish a mechanism for data collection and analysis, to coordinate all Bay research activities, and to make recommendations on ways to improve Chesapeake Bay water quality management.

Participants

As the agency designated by Congress to establish and manage the program, EPA, and in particular its Region 3 office, is the leading participant. However, EPA established a Chesapeake Bay Program Management Committee to make decisions concerning program policy and management. The Committee has been central in allocating the $25 million that Congress appropriated for the program. Chaired by EPA, the Committee also includes representatives from the states of Pennsylvania, Maryland, and Virginia, as well as the District of Columbia. For staff support, the Management Committee has primarily relied on EPA Region 3 and the Maryland Department of Natural Resources, the Maryland Department of Health and Mental Hygiene, the Virginia Department of Commerce, the Pennsylvania Department of Environmental Resources, and the Susquehanna River Basin Commission. Chesapeake program managers attempted to involve a variety of members of the Bay community, including scientists, state officials, citizens, recreational interests, watermen, business, and industry. In addition, EPA established a public participation program to facilitate citizen involvement. This activity is managed by the Citizen's Program for the Chesapeake Bay, Inc., an independent, non-profit, Bay-wide alliance of organizations founded in 1971 to provide an avenue for a discussion of issues affecting the Bay. Among other things, the Citizens Program transmits research findings to the public.

Level of Coordination

The Chesapeake Bay Program has facilitated policy coordination on several levels: from the sharing of information about research needs and results to consultation about research priorities to shared decisionmaking with respect to the allocation of research funds. Apparently, the process of information sharing, consultation, and shared decisionmaking has also led to informal working relationships that facilitate coordination with respect to priorities beyond research.

Form of Coordination

Direction for the Chesapeake Bay Program has come from the Chesapeake Bay Program Management Committee, essentially an interagency council. The representatives from EPA, Pennsylvania, Maryland, Virginia, and the District of Columbia, meet to set goals for the program and allocate research funds. Except for this limited purpose, the governments represented on the committee do not cede any of their individual responsibilities. Reliance on EPA and state government agencies for staff has enabled the Management Committee to focus on decisionmaking.

Results

At the outset of the program, EPA approached the scientific community, Bay area governments, and the public to devise a list of ten candidate issues for possible study by the Chesapeake Bay Program. Of these, three topics--nutrient enrichment, toxic substances, and the disappearance of submerged grasses--were chosen for primary emphasis. During the seven years of the program, over $17 million were spent by the CBP to support more than forty individual scientific research projects. These are summarized in EPA's report, Chesapeake Bay Program Technical Studies: A Synthesis. In addition to commissioning and monitoring these

Research projects, the Chesapeake Bay Program developed a computerized data management system to compile and evaluate data collected by the Program's own project as well as other research efforts. All data in the system have been verified, and are now available for use by others. This data base is considered to be the most extensive body of scientific knowledge on any single estuary in the world. It provides the basis for a common understanding of the Bay's ecological problems. The Program itself has used this data base to evaluate water and sediment quality and living resources variables in 45 segments of the Bay.

In terms of the six dimensions, results of the Chesapeake Bay program are as follows.

1. Long-Range Goals. Through the process of selecting the three principal research areas, and the more than forty projects within those areas, the Chesapeake Bay Program seems to have been reasonably successful in achieving agreement among EPA and the state participants as to priority research needs. In addition to setting and managing a research agenda, the Program was also charged with more ambitious goals. By statute, it was directed to "restore and maintain the Bay's ecological integrity." And EPA was directed to use the CBP Management Committee, together with the existing water quality management process, to "develop a comprehensive basin-wide plan to reduce the flow of pollutants into the Bay." Long-term goals at this level of generality have not yet been established, in part because the Chesapeake Bay Program is incomplete. A "summit" meeting in December, 1983, was to address the implementation of recommendations from the program's seven years of study. The common understanding of the Bay's ecology development during the course of these studies, and the process of

interactions, should facilitate the establishment of these water quality goals. But they have not yet been adopted.

2. Public Involvement. The Chesapeake Bay Program has actively pursued and enlisted a great deal of public advice and support for its efforts. Establishment and support of a public participation program managed by the non-profit Citizens Program for the Chesapeake Bay, Inc., as well as consultation with Bay area scientists, government officials, and others in the formulation of program objectives, illustrate EPA's effort to facilitate a public involvement. Public support for the overall program is evident in the continuing vitality of the citizens' program, and in the general level of public concern over the health of the Bay and support for efforts to restore it. Public involvement in the management of the Chesapeake Bay's resources also occurs through the Chesapeake Bay Foundation. The Foundation is a non-profit organization with an endowment of over $3 million, an annual budget on the order of $400,000, and a staff of about 50. Its three main programs represent bay resource interests in administrative, legislative, and judicial proceedings; conduct environmental education activities; and acquire lands around the Bay for conservation in their natural state. The Foundation has generally supported the Chesapeake Bay Program.

3. Coordinated Research Needs. Establishing a research agenda was the Chesapeake Bay Program's principal mission. The Chesapeake Bay Program has been effective in allocating the resources appropriated by Congress to specific research projects that supported agreed-upon research needs.

4. Focusing of Resources. Because implementation of the CBP's recommendations has not yet begun, the Program has not yet had the opportunity to bring about the focus of other federal and state resources on the problems, issues, and priorities identified during the course of the program's studies. However, development of a "regional management ethic" over the course of the program, and retention of the CBP Management Committee to direct the implementation of the studies finding should facilitate such a focusing of agency resources.

5. Review of Individual Agency Policies. To date, the CBP Management Committee has not reviewed individual agency policies, essentially because such a review would be beyond the scope of the program's mission. Adoption of the program's recommendation that the Management Committee develop a comprehensive basin-wide plan should provide a framework for coordinated review and evaluation of individual agency policies as related to achieving longer-range goals. However, it is too early to tell how effective this framework would be in performing this review function.

6. Regulatory/decisionmaking Functions. To date, Program decisionmaking has focused on identifying priority issues and allocating research resources. It has not functioned as a regulatory body. Adoption of a basin-wide plan would tend to push it in this direction. But again, it is too soon to tell how well the program would function in this role.

Summary

The Chesapeake Bay Program seems to have been highly successful in achieving common understanding of the Bay's ecological processes, in identifying possible priority issues, and in developing a regional management ethic. Three elements seem to be particularly important in the program's success. First, it began with a sustained effort to understand the scientific facts about the Bay's ecology. This focus provided neutral ground on which government agencies, researchers, and others with diverse policy perspectives could work toward a common goal of better understanding. The common knowledge base developed can now be used as the basis for the inherently more difficult, political task of developing water quality management strategies. Second, the federal government provided significant funds. These resources, and the invitation to help allocate them, provided a significant carrot to induce the participation of state government. Third, the Program took a deliberate, measured pace. By allowing seven years for a series of studies, the program both developed an extremely robust data base and facilitated the development of interpersonal and institutional relationships. Taken together, these elements have helped create an extremely firm foundation on which to build future efforts.

4.2 SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION

The 27-member Commission was created in 1965 by the California legislature in response to concern among Bay area citizens about the future of San Francisco Bay.

Objectives

The McAteer-Petris Act, the Commission's enabling legislation, initially gave BCDC the limited responsibility of preparing "a comprehensive and enforceable plan for the conservation of the water of

San Franciso Bay in the development of its shoreline."[5] In 1969, the Commission submitted its completed San Francisco Bay Plan to the Governor and the legislature. The McAteer-Petris Act was then amended to give the Plan the force of law and to make the Commission a permanent body with responsibility for implementing the plan. Thus BCDC became the regulator of shoreline use around the Bay and dredging and filling operations in the Bay. In 1977, the Commission was given the additional responsibility of implementing the Suisun Marsh Preservation Act in cooperation with local governments and the Department of Fish and Game.[6] The Act requires cities, counties, and special districts to prepare a shoreline protection program consistent with both the San Francisco Bay Plan and the Preservation Act. Each plan is to include controls to protect wetlands, riparian habitats, and agricultural lands within the Suisun Marsh. Anyone contemplating the placement of fill, dredging, or any substantial change in the use of the Bay or shoreline must first obtain a permit from the Commission. Permits are only issued if the proposed project is consistent with the San Francisco Bay Plan and the McAteer-Petris Act, or the Suisun Marsh Protection Act and the Suisun Marsh Protection Plan, as applicable.

Level of Coordination

For the limited purpose of planning, regulating, and enforcing filling, dredging, and shoreline use around San Francisco Bay, the Commission is a vehicle for shared decisionmaking, in which the Plan and other Commission decisions are binding on all state and local agencies in the Bay area. This authority is backed up by the Commission's enforcement powers.

Form of Coordination

In form, the Commission is something of a hybrid: part interagency council, part super agency. It is an interagency council in the sense that direction is provided by the 27 Commission members, who represent federal, state, and local government in nine Bay area counties, as well as the general public. It is a super agency in the sense that the Commission has its own budget and staff, and for the Commission's limited purposes, its authority supersedes that of individual state and local governments. The Commission's budget derives from a combination of state legislative appropriations, grants won from outside sources including the federal government, and a percentage of the penalities levied against violators of its regulations. BCDC maintains a staff of 29 people, four of whom constitute the enforcement division.

Results

Over a period of 18 years, the Commission has managed to formulate a shoreline use plan for the Bay, secure its adoption, and exercise responsibility for its implementation. The two objectives of the Bay Plan are (1) to protect the Bay as a great national resource for the benefit of present and future generations; and (2) to develop the Bay and its shoreline to their highest potential with a minimum of Bay filling. In pursuit of these objectives, the Commission now regulates all filling and dredging in San Francisco Bay, which is defined to include San Pablo and Suisun Bays, sloughs, certain creeks and tributaries that are part of the Bay's systems, as well as salt ponds and pertinent other diked-off areas. The Commission provides public access to the Bay to the maximum extent feasible, consistent with the nature of new shoreline development, within a 100 foot wide strip inland from the Bay. The Commission is also responsible for minimizing pressures to fill the Bay by ensuring that the limited amount of shoreline properties suitable for regional high priority water oriented uses is reserved for these purposes. Priority uses include ports, water related industry, water oriented recreation, and wildlife areas.

With respect to the specific dimensions for comparison, the Commission appears to have performed as follows:

1. Long-Range Goals. The Commission has been extraordinarily successful in developing clearly stated, specific long-range goals for San Francisco Bay's development: that is, the preservation of the Bay as a natural resource and the development of the Bay and its shore with a minimum of filling. By operationalizing these goals in terms of the specific elements of the Plan, and securing the passage of the Plan into law, the Commission has further ensured the stability of these goals.

2. Public Involvement. Citizen involvement in the Commission's work occurs mainly through the Save-the-Bay Association, a citizen's lobby initiated by three Berkeley women in 1965. The Associations' 18,000 members helped persuade the California legislature to adopt the McAteer-Petris Act in 1965. In 1969, the Association played a crucial role in convincing the legislature to adopt the Bay plan itself. The Save-the-Bay Association continues to provide citizen advice and public support for the Commission's operations.

3. Coordinated Research Needs. Except in a few isolated instances, research and investigation has not been viewed as essential to support the Commission's planning and regulatory functions. However, on those

occasions when research in support of the Commission was necessary, these needs were clearly identified and filled. The study authorized by the original McAteer-Petris Act defined the goals of the BCDC in the Bay Plan. In order to implement the Plan's recommendations, the Commission has periodically clarified basic issues on which those recommendations depend. In 1976, the Commission hired a consulting firm to analyze the concept of water-related industry. This analysis has enabled BCDC to make priority decisions with regard to approval of water oriented development. Program needs also led to a 1982 study aimed at improving the coordination of permit applications for Bay area development. Still, the identification of research needs is not a major Commission activity.

4. Focusing of Resources. As the agency primarily responsible for the preservation of San Francisco Bay, and as the agency designated by the federal government to review and comment on proposals for federally permitted activities in the Bay, the Commission has been the vehicle for achieving consistent policy with respect to dredging, filling, and shoreline's use around the Bay. However, the targeting of new problems, issues, and priorities, and the corresponding focusing of resources, have not been central to the Commission's mission.

5. Review of Individual Agency Policies. Within its area of regulatory responsibility, the Commission reviews programs and projects sponsored or permitted by individual agencies for consistency with the Bay Plan. It may require the discontinuation of programs or projects that violate the Commission's requirements. Beyond this relatively narrow authority, the Commission's powers do not extend to the more general review and evaulation of individual agencies' policies.

6. Regulatory/Decisionmaking Functions. Within its limited jurisdiction, the Commission acts as a regulatory authority whose decisions are binding on state and local agencies and carry great weight with federal agencies. In this sphere, the Commission has been highly effective as a regulator.

Summary

The Commission's effectiveness appears to hinge on three main factors. First is the limited scope of its responsibilities. The Commission has a strictly defined geographic jurisdiction--the San Francisco Bay, plus one hundred feet of shoreline, and one goal--the preservation of the Bay's water and land resources. Second, the Commission and its goals enjoy great public support, channeled through a broadly based and professionally managed citizen's group, the Save-the-Bay Association. The Commission also enjoys the support of constituent local governments, because its authority removes from them the responsibility of making politically difficult shoreline use decisions. Third, the Commission can marshall the requisite tools to do its job: an independent budget, staff, legal authority and enforcement powers. Fourth, the Commission need not cope with scientific uncertainty in its sphere of endeavor.

4.3 INTERNATIONAL JOINT COMMISSION (GREAT LAKES)

The International Joint Commission is a permanent, bi-national institution established by the Boundary Waters Treaty of 1909 to solve trans-boundary disputes between the United States and Canada. Article IV of the Treaty provided that "boundary waters and waters flowing across the boundary shall not be polluted on either side to the injury of health or property on the other." While the Treaty gave the Commission no enforcement authority in this regard, over the years the IJC conducted a number of investigations concerning water pollution in the Great Lakes. Thus studies culminated in two Great Lakes Water Quality Agreements between Canada and the United States, the first in 1972 and a second, more comprehensive version in 1978.[7] The broad purpose of the Agreement is to "restore and maintain the chemical, physical, and biological integrity of the waters of the Great Lakes Basin Ecosystem." The Agreement also sets out a number of additional "general" and "specific" objectives. To attain these goals, the Commission is directed to monitor water quality, assess the effectiveness of government pollution control programs, and advise the Canadian and U.S. Governments on means of improvement. At least every two years, the IJC is to issue a report to the Canadian and U.S. Governments concerning progress toward the achievement of the Agreement's objectives. In carrying out its responsibilities under the Agreement and especially in developing recommendations, the IJC relies on two advisory boards established by the Agreement: the Great Lakes Water Quality Board and the Great Lakes Science Advisory Board.

Objectives

The main purpose of the IJC is investigative: to study questions or matters of difference between the United States and Canada along the common frontier. The two national governments may refer questions to the Commission, called "references." The Commission then makes an investigation, reports the facts, and recommends appropriate action. In addition, the IJC has some limited regulatory authority. Governments, companies, or individuals must apply to the Commission for permission to construct, divert, or make use of water in such a way as to affect the natural level or flow of boundary water on the other side of the international boundary, or to raise the level of trans-boundary rivers at the boundary. For those applications approved, the Commission issues an order of approval, often with terms and conditions. The IJC then monitors compliance with these terms and conditions. The Commission itself lacks enforcement authority. It can only recommend that either of the two national governments take action in the event the Commission's orders are violated. However, the Commission's Reports and Recommendations are said generally to prompt action.

The principal objective of the Great Lakes Water Quality Board is to develop recommendations for improving Great Lakes Water quality management for consideration by the Commission. Specifically, the 1978 Great Lakes Water Quality Agreement directs the Water Quality Board to "advise the Commission on the progress and effectiveness of . . . the programs to restore and maintain the chemical, physical, and biological integrity of the waters of the Great Lakes Basin eco-system." The Board is further directed to "identify deficiencies in the scope and funding of such programs and evaluate the adequacy and compatibility of results," and also to "examine the appropriateness of such programs in the light of present and future of socio-economic imperatives." The function of the Scientific Advisory Board is to advise both the Commission and the Water Quality Board on scientific and research matters.

Participants

The International Joint Commission consists of three Canadians and three Americans. One of the Americans and one of the Canadians each serves as a full-time co-chair. The other members serve part time. All the U.S. members are appointed by the President with the advice and consent of the Senate. The Commission has two separate head offices, one in Ottawa and one in Washington, each with a small staff. The IJC also maintains a permanent binational staff at its Great Lakes Regional Office to assist the two water quality-related boards. The Great Lakes Water Quality Board has 18 members, consisting of nine senior managers from the pollution control programs of each government. The Board is jointly chaired by representatives from the federal environmental agency of each country: the U.S. Environmental Protection Agency Region 5 Office and Environment Canada. The environmental agencies of the two countries also provide staff support, in the United States through EPA's Great Lakes National Program Office. Initial staffing arrangements and budgetary allocations were included in the 1978 Great Lakes Water Quality Agreement, and are reviewed annually by the two governments. The Science Advisory Board consists of 8 government, industry, and public members from each country, plus two ex officio members from the International Association for the Great Lakes Research and the Great Lakes Fishery Commission.

Level of Coordination

Nominally, the International Joint Commission's regulatory authority entails shared decisionmaking between the United States and Canada. Because of the Commission's lack of enforcement authority, however, and its emphasis on making recommendations to the national governments on the basis of its investigations and studies, the Commission is essentially a vehicle for consultation between the two governments.

Form of Coordination

Both the Commission and the Board function as bi-national interagency councils. Both entities meet periodically and issue reports, but much of the staff work is done at home by the constituent agencies of each: that is, EPA Region 5 and Environment Canada.

Results

The International Joint Commission and its Great Lakes Water Quality Board do not appear to have had great impact on water quality management of the Great Lakes. Their monitoring and research efforts have provided some help to the two national governments in assessing progress toward restoring the integrity of the Great Lakes ecosystem. But the Commission's Great Lakes water quality program has not been central to these efforts.

1. Long-Range Goals. The Commission has demonstrated an ability to identify long-range goals, as set out in some detail in the 1978 Great Lakes Water Quality Agreement. But given the Commission's limited powers, it can only urge that the Canadian and U.S. government agencies active in water quality management on the Great Lakes accept these goals and corresponding priorities as bases for their own planning. Apparently, such exhortations are insufficient. In its first Biennial Report under the 1978 Agreement, the Commission noted a "sense of drift" and urged new

initiatives on the part of the two governments "to give a continuing sense of purpose, direction and commitment to Agreement activities."[8]

2. Public Involvement. In the same Biennial Report, the Commission partially attributes this lack of direction to insufficient public involvement. The Commission states that "ways must be found to maintain support of the Water Quality Agreement" and recommends the encouragement of "citizen involvement in identifying and shaping long term ecosystem goals in order to build greater community consensus and commitment." However, the Commission does not offer specific recommendations in this regard. Given the huge geographic jurisdiction of the IJC, its very general water quality mandate, and its lack of decisionmaking authority, it seems an unlikely focal point for intense public involvement despite even the most creative efforts to foster it.

3. Coordinated Research Needs. The 1978 Great Lakes Water Quality Agreement included a variety of research, monitoring, and surveillance needs, partly in the body of the Agreement, but especially in the Annexes dealing with particular pollution problems. However, the Commission has been relatively ineffective in prodding government programs on either side of the border to address these needs. In its 1982 Biennial Report, the Commission expresses concern about the level and allocation of resources directed toward meeting such research obligations by the two governments. Therefore the Commission has requested its Science Advisory Board to review the adequacy of research activities relevant to the 1978 Agreement and in particular to identify gaps that should be of concern to the Commission.

4. Focusing of Resources. More generally, the IJC has not been an effective vehicle for focusing the resources of the agencies of the two governments on agreed-upon problems and priorities. Consider the issue of toxic and hazardous substances. In its 1981 report to the Commission, the Water Quality Board lamented the absence of an overall ecosystem strategy for controlling toxics:

> Programs have been compartmentalized under each legislative mandate, and the resources have been allocated accordingly. . . . This fragmentation has resulted in duplicate activities in some cases, incomplete program coverage in others, and a limited management capacity to effectively address emerging complex problems.

All the Commission can do is recommend improvement.

5. Review of Individual Agency Policies. The IJC does not review individual agency policies. The 1982 Biennial report contains some criticism of the two government's commitment to reducing pollution on the Great Lakes. But the IJC's language is so diplomatic, its criticisms so general, and its authority so weak, that such review seems unlikely to have much effect. (The Commission does not even fault individual agencies by name.)

6. Regulatory/Decisionmaking Functions. The Commission has limited authority to rule on applications for the use of Great Lakes water, but no independent enforcement authority in this regard. Nor does this regulatory authority appear to be central to Great Lakes water quality management.

Summary

The International Joint Commission and its Water Quality Board appear not to be major forces in the policy coordination of water quality management on the Great Lakes. This marginal role seems to stem from the Commission's rather vague responsibilities, and its lack of enforcement authority.

4.4. GULF COAST WASTE DISPOSAL AUTHORITY

The Gulf Coast Waste Disposal Authority was established by Texas statute in 1969 to improve water quality in the heavily industrialized Houston-Galveston Bay area.[9]

Objectives

The Gulf Coast Waste Disposal Authority was established to study water pollution, plan corrective and preventive measures, provide coordinated facilities for the disposal of municipal and industrial waste, and regulate waste disposal on a regional basis for Chambers, Galveston, and Harris Counties, Texas. Among other things, the Authority is authorized to conduct studies and research for water pollution and waste disposal within its jurisdiction; set and enforce water quality standards; regulate solid waste disposal; and acquire, construct, and operate waste disposal facilities. The Authority's overriding purpose is to accomplish these functions more effectively than could efforts on a county-wide, city-wide, or smaller scale.

Participants

The Authority is governed by a nine-member Board of Directors, three from each of the three counties that comprise its geographic jurisdiction. Of the three members from a given county, one is appointed by the Governor, one by the County Commissioners, and one by the County's mayors. The Authority employs a general manager and its own staff.

Level of Coordination

The Authority is a vehicle for the central control of waste disposal activity in its three county district. It accomplishes this control by operating a significant proportion of the area's waste treatment facilities.

Form of Coordination

The Gulf Coast Waste Disposal Authority is a local unit of government that acts as a super agency within the field of waste disposal, superseding some of the waste disposal authority of the other local governmental units within its three county jurisdiction. The Authority's Board of Directors meets no less than once a month, elects officers, and employs a General Manager to implement policy as determined by the Board. The General Manager is the chief executive officer of the Authority. He is responsible for the actual operation of the Authority's waste treatment facilities. The Authority was initially funded by an appropriation from the state government, but became fiscally self-sufficient in 1976. The Authority issues bonds for the construction of facilities and repays them through user charges and penalties levied against violators.

Results

The enabling legislation that established the Gulf Coast Waste Disposal Authority was rather broad. Under its mandate, the Authority could have chosen to act as a regulator of water quality as well as regulator of waste disposal and operator of waste disposal facilities. Early in its existence, however, the Authority judged that attempting to regulate and operate was an inappropriate combination of tasks for a single agency. Acknowledging the effectiveness of existing water quality regulatory agencies, the Authority chose to concentrate on improving water quality through the operation of waste disposal facilities for the disposal of industrial wastewater, municipal wastewater, and solid waste. These operations are based on a regional concept. Through performance of this limited function, the Authority seems to have been relatively effective in improving the water quality of the Houston-Galveston Bay area.

Other results are as follows:

1. Long-range goals. The Gulf Coast Waste Disposal Authority seems to have been an effective focus of regional support for one overriding goal: the protection of Galveston Bay from pollutant discharges into the Houston Ship Channel.

2. Public Involvement. There has been general public recognition of the need for treatment facilities such as those operated by the Authority. But the Authority has not always enjoyed great public support for particular siting decisions. In 1982, the Authority contracted with the Keystone Center of Colorado to design and conduct two workshops on public involvement in Houston-Galveston area siting decisions. Participants in the workshops concluded that the current process of public

participation could be improved. In particular, they judged that provision should be made to encourage public involvement early in the siting and permitting process, rather than postponing it until the administrative hearing or still later stages. The Authority has stated that it is encouraged by the "prospect of finally integrating the siting of environmental sound facilities with effective public participation."

3. Coordinated Research Needs. The GCA exercises its authority to conduct studies and investigations into areas of direct concern to its operations. These include studies of the water quality of the Bay, and the impact of waste disposal treatment, as well as feasibility studies for plant siting and improvement and public opinion surveys. Thus in support of GCA's own waste disposal operations, the Authority is able to provide a agenda of research needs.

4. Focusing of Resources. Within the sphere of waste disposal, the authority is able to focus resources (bond proceeds repaid through user charges) on priority needs, through the economies of scale the Authority enjoys in this area.

5. Review of Individual Agency Policies. The Authority takes cognizance of individual agency policies only insofar as they might contradict GCA's own regulatory requirements. In such a case GCA has the power to challenge that policy in Texas district court and require modification.

6. Regulatory/Decisionmaking Functions. The Authority uses both combined treatment facilities and individual treatment facilities for industrial and municipal waste. The Authority's only regulatory powers are to require that solid waste be disposed of properly, generally in the

Authority's facilities. Its enforcement powers are exercised through the district court of the county in which a violation occurs. Other regulation impinging on water quality is left to existing agencies. The Authority's decisionmaking authority is limited to the siting and operation of waste disposal facilities. Through its monopoly of these functions within its geographic jursidiction, the Authority has been effective.

Summary

As a super agency exercising central control of one particular function, waste disposal, the Gulf Coast Waste Disposal Authority differs from the other institutional models explored in this chapter. Essentially, it reduces the need for interagency coordination in the traditional sense, at least in the waste disposal field, by assuming much of the responsibility itself. This experience illustrates what can be achieved by an agency with narrow functions, great power, and independent resources. It also suggests that new entities with broad statutory powers may wish to consider focusing their efforts on a particular aspect of their mission to which they can make an especially strong contribution.

4.5 DELAWARE RIVER BASIN COMMISSION

The Delaware Basin Commission is a federal-state compact among the governments of Delaware, New Jersey, New York, Pennsylvania, and the United States. Negotiated in 1961, the DRBC is a nearly unique government agency in that it is a part of both the United States Government and the government of each of the four member states.[10]

Objectives

The compact gives the Commission very broad objectives: to "encourage and provide for the planning, conservation, utilization, development, management and control of the water resources of the [Delaware River] Basin." The Commission is to develop and implement plans, policies, and projects relating to the Basin's water resources; adopt and promote uniform and coordinated policies for water conservation, control, use, and management; and encourage the planning, development, and financing of water resources projects by others. The Commission is also authorized to construct and operate its own facilities and to borrow money and issue bonds for this purpose. From this broad array of objectives, the Commission has tended to pursue two: settlement of disputes among the states over water allocation, and promotion of river basin development in accordance with a comprehensive plan.

Participants

The Commission itself consists of one commissioner representing each of the constituent governments. In the case of the federal government, the Department of the Interior is the federal member of the Commission, but the federal commissioner himself is a presidentially appointed official with an office in the Department of the Interior. The Commission maintains its own small staff, and operates on appropriations from each of the constituent governments. Delaware provides 8% of the annual budget, with each of the other governments providing 23%.

Level of Coordination

In principle, the Commission provides a vehicle for shared decisionmaking by its members. This shared decisionmaking occurs in two ways: first, through adoption of a comprehensive water resource plan to which all compact signatories are bound; and second, through required approval by the Commission of any project having a substantial affect on the Basin's water resources.

Form of Coordination

The DRBC is part interagency council, part super agency. It is an interagency council in the sense that it is a deliberative body for shared decisionmaking among its member governments. It is a super agency in the sense that it has regulatory and developmental authority comparable to that of its constituent governments. In practice, the Commission has tended to act more as a council; it has made little use of its powers to act as a super agency. As a council, a major problem has been that the individual commissioners have little control over the agencies that make up their respective governments. The federal commissioner is in a particularly anomalous position, in part because under the compact an individual federal agency is not bound by a particular Commission decision unless that agency has specifically concurred in that decision. Therefore, the federal commissioner often can do no more than report the positions of the individual federal agencies, because he lacks a means of enforcing a unified position. Indeed, the federal commissioner chairs an interagency committee that convenes one week before the Commission meets precisely to review its agenda and develop individual agency positions.

Results

Over its life of two decades, the Commission appears not to have had a dramatic impact on the Delaware River Basin. It has been fairly effective in settling water allocation disputes, where the states have a shared interest in their resolution and the federal agencies are relatively indifferent. With respect to other areas of activity, the reluctance of the federal agencies to support the Commission and to be bound by its decisions have thwarted a very strong role.

1. Long-Range Goals. The DRBC is not engaged in independent long-range planning. Rather, its "plan" is the result of reviewing and approving the plans of individual agencies and of approving local private and public projects. In short, the Commission has not established a unified set of long-range goals for the Delaware River Basin.

2. Public Involvement. Apparently the public has not been heavily involved in the Delaware River Basin Commission's activities. The major impetus for creating the Commission came largely from state governments and the states' Congressional delegations rather than from any grassroots movement. So the Commission has lacked intense preexisting public interest to tap. Concentration of the Commission on rather narrow, technical activities and its large geographic jurisdiction may have also worked to discourage public participation.

3. Coordinated Research. The Commission's staff engages in monitoring river flows, pollution spills, and other attributes of the river basin. However, the Commission itself has neither undertaken its own independent research nor served as a mechanism for coordinating the research of member governments or their constituent agencies.

4. Focusing of Resources. Because of the autonomy of the agencies within each government, particularly the federal government, the Commission has not served as a means for focusing agency resources. However, it has had some success in inducing local governments to consolidate their waste treatment plans.

5. Review of Individual Agency Policies. The DRBC does review the plans of individual agencies, including federal agencies. It also reviews project proposals of individual agencies. However, the Commission has tended toward fairly uncritical approval of agency plans and projects alike.

6. Regulatory/Decisionmaking Functions. The Commission exercises regulatory and decisionmaking functions through its comprehensive planning and approval of individual projects. Despite early aspirations, the Commission has never fully succeeded in establishing jurisdiction in the realm of water pollution control. Essentially, it has acted jointly with the states in setting standards and relied on the states for enforcement. At the federal level, neither EPA nor the Corps of Engineers have tended to support a strong regulatory role for the DRBC.

Summary

Judged against the sweeping powers contained in its charter, the Delaware River Basin Commission has played a disappointingly limited role in managing the basin's water resources. This limited role primarily reflects attitudes ranging from indifference to hostility on the part of the federal agencies. Nonetheless, in one area where the states have had a shared interest in effective Commission action--settling water allocation disputes among the states--it has performed a useful role.

4.6 IMPLICATIONS

Each of these five models grew out of very particular circumstances. Moreover, five "data points" is a very small sample. Thus generalization from these cases, much less mechanical application to the management of Puget Sound water quality, must be done with considerable caution. Nonetheless, these cases do offer some important implications. They can be categorized according to the six criteria.

Long-Range Goals

Except at very high and largely innocuous levels of abstraction, individual government agencies prefer to avoid setting explicit, publicly stated long-range goals. Much less are agencies ordinarily inclined to negotiate with their counterparts a collectively binding set of common goals. Thus any institution faces a very tough uphill battle in attempting to establish agreement on long-term goals. As the case of the Delaware River Basin Commission suggests, even a legal instrument mandating production of a comprehensive plan may be insufficient to induce constructive participation. Of the five cases, only two seem to have achieved even partial success in this regard. The Chesapeake Bay Program appears to have "worked up" to some agreement on long-range goals by starting with a more concrete task that could attract agency participation: allocation of federal research funds. The Gulf Coast Authority presents a different case. It has acted as a focal point for a single goal that had a lot of preexisting support, but no institutional home: protection of Galverston Bay from Houston Ship Channel pollution. Perhaps these approaches could be adapted to Puget Sound.

Public Involvement

Institutions can facilitate (or discourage) public involvement, but they cannot create it. Of the five models, the two that have most effectively fostered public participation are those that largely owe their creation to preexisting public interest, which then carried over to public involvement in the institutions once established: i.e., the Chesapeake Bay Program and the San Francisco Conservation and Development Commission. (Seattle Metro has enjoyed a similar progression.) Similarly, any new Puget Sound institution is most apt to attract public involvement if it responds to preexisting public interests and is at least partially created by citizen activism. At a minimum, a regional institution must command at least some real decisionmaking powers if it is to entice public participation. Toothless institutions generally do not generate much public attention, as the International Joint Commission's work illustrates.

Coordinated Research Needs

Establishment of a common research agenda faces the same hurdle as agreement on long-range goals: the agencies will participate only if they have a shared interest in doing so. Of the five cases, the Chesapeake Bay Program offers perhaps the only workable means of creating this interest: offering the agencies the opportunity to allocate a pot of research resources outside their own budgets. Once in the game, these agencies may gradually adjust their own research priorities to align with the common program. This approach could be effective on the Sound, and indeed the Puget Sound Water Quality Program works somewhat in this fashion.

Focusing of Resources

Focusing of agency resources in accordance with common goals impinges on the very core of agency autonomy. Even more so than the establishment of long-range goals and research needs, resource allocation resists interagency coordination. No coordinating institution seems apt to seriously affect the resource allocation decisions of individual agencies as long as they remain separate. Only a super agency, such as the Gulf Coast Authority, has much chance of doing so, by partly replacing individual agencies themselves. Attempts to focus resources devoted to Puget Sound water quality should have few illusions on this score. (Though a partial solution, as discussed in connection with research needs, is to assemble a new, common batch of resources.)

Review of Individual Agency Policies

None of the five cases suggests that interagency institutions can effectively review the policies on the individual agencies. Even when this function is an explicit part of the institution's mandate, as in the case of the Delaware River Basin Commission, the tendency is simply to ratify individual agency policies without much real scrutiny. This tendency should not be surprising. All the agencies have a shared interest in avoiding such a review. A partial exception may be the International Joint Commission, which does provide some oblique criticism of agency policies in its first Biennial Water Quality Report. The IJC's inclination to engage in such review probably stems from the membership of the Commission itself. The commissioners represent the two governments rather than individual agencies. Some similar source of independence would probably be required for a Puget Sound agency to seriously review individual agency policies. But as the IJC also suggests this independence comes at a cost: no one listens to the resulting critique.

Regulatory/Decisionmaking Functions

To have an impact, a coordinating institution must have some decisionmaking authority--either to allocate resources or to regulate individual agencies. The marginal roles of the International Joint Commission and the Delaware River Basin Commission stem from their lack of such effective authority. In contrast, the Chesapeake Bay Program has allocated research funds; the San Francisco Bay Conservation and Development Commission regulates shoreline use; and the Gulf Coast Authority constructs and operates waste disposal facilities. It is these concrete missions serving (and potentially impinging on) the interests of agencies and publics that create the incentive for agency participation and public involvement. Any Puget Sound institution must similarly have well-defined decisionmaking functions if it is to have an impact.

5.0 INSTITUTIONAL OPTIONS FOR CONSIDERATION

Puget Sound is a common resource whose preservation requires collective restraint, based on collective understanding, among those agencies responsible for managing its water quality. This goal implies a need for policy coordination among responsible and interested agencies--i.e., a capacity for reaching agreement about priority issues, research needs, problem-solving strategies, and assessment of the results.

At present, no single institution acts as a focal point for purports to establish general policies governing Puget Sound water quality management. Instead, the region relies on three more narrowly focused institutions--the Puget Sound Water Quality Management Program, the State-EPA Agreement, and the Puget Sound Water Quality Authority--and the autonomous federal, state, local, and tribal agencies. Present arrangements, especially as they evolve, may prove adequate to provide needed goals and direction. On the other hand, a new institution or combination of institutions may be preferable.

This chapter is intended to provide perspective on the institutional aspects of Puget Sound water quality management by evaluating six broad institutional options for policy coordination. These options are the "evolving status quo," plus five others: an interagency management group modeled on the Columbia River Management Group, a Puget Sound Program analogous to EPA's Chesapeake Bay Program, a Sound-wide waste disposal authority, a federal-state compact, and a Washington state super agency. Each option is presented in the same format: a brief description, an evaluation according to the six criteria used in Chapter 4 plus a general criterion of effectiveness in reaching collective decisions, an assessment of implementation barriers, and a summary evaluation of strengths and weaknesses.

Several limitations of this analysis should be noted. First, in devising options, arbitrary assumptions had to be made about the key features of each option. One could alter these features endlessly to generate an infinite number of options. This brief report could not consider many variations on each theme--but readers may be stimulated to do so. Second, there is considerable uncertainty about how any given option would work out in practice. The models from elsewhere discussed in Chapter 4 provide some indication, but differences in time, space, and other circumstances complicate translation to Puget Sound. Third, major institutional innovations are not the only alternatives to the status quo. Marginal adjustments may also improve water quality management, probably cheaper and more easily. (A few possibilities are discussed in Chapter 6.) Still, the more ambitious options deserve consideration.

5.1 STATUS QUO

The "status quo" option entails continued evolution of the institutional arrangements described in Chapter 3. Key elements are the EPA/WDOE Puget Sound Water Quality Management Program, the State-EPA Agreement, and the Puget Sound Water Quality Authority.

A strengthened Puget Sound Water Quality Management Program would be the centerpiece of this option. Specifically, the Program's Steering Committee would establish a decisionmaking agenda in the form of periodic, written "program decisions" rendering the Steering Committee's collective judgment on key issues. As necessary, the Steering Committee would form ad hoc subgroups to advise the Committee on specific issues, such as dredge spoils disposal. Upon completion of its work, such a group would ordinarily disband. Additional agencies would be gradually included in the Program, either through membership in the Steering Committee or through participation in subgroups.

Evolution in the State-EPA Agreement would also contribute to more coherent policy. This evolution could take two, compatible directions. First, steps could be taken to establish a separate State-EPA Agreement for Puget Sound Water Quality, specifying key issues and the agencies' commitment of resources (and the timing of those commitments) to specific tasks that would address Puget Sound water quality issues. Initially, this statement could be included as an appendix to the present State-EPA Agreement. Later, it could be issued as a stand-alone document. Second, additional federal, state, local, and tribal agencies could participate in the SEA process. Initially, they might simply agree to submit their own plans in a format comparable to the SEA, for issuance together. Later, they could make commitments as full parties.

Because the Puget Sound Water Quality Authority is so new, it is difficult to predict its course or recommend specific directions. Given the Authority's broad membership and mandate, its most constructive role may be in developing a broad public consensus on critical issues. In particular, the Authority could perform a valuable educational function by sponsoring scientific films, public workshops, audio/visual displays (e.g., at the Seattle Aquarium, Pacific Science Center, aboard the state ferry system), and the like. It could also perform a construcive public participation function by continuing to hold meetings to solicit public views on critical issues facing the Sound. On the basis of advice from the public, and its own deliberations, the Authority could thus act as a "board of directors" to guide and review the Steering Committee's deliberations.

Evaluation by Criteria

The following evaluation has two purposes. The discussion under each criterion evaluates the status quo arrangements as presently constituted. But it also discusses how the constructive evolution just described could help address any weaknesses. Thus this discussion serves as evaluation of both present arrangements and their reasonably foreseeable evolution.

1. Long-Range Goals. The Puget Sound Water Quality Management Program shows promise as a means of establishing long-range goals at least at the level of identifying issues that require attention. But as presently constituted this mechanism also has limitations. First, and most obviously, only EPA, WDOE, and DSHS now participate. There is little reason to expect other agencies to adopt the same goals, or even consistent goals, unless they have an opportunity to influence the Program's deliberations. Hence the need to consider ways of expanding participation. Second, the process is new. So far it has produced only internal agreement on priority issues, and associated information and research needs. When the Program moves to establish a decisionmaking agenda that sets outcome goals and strategies for meeting them (e.g., through regulatory or legislative initiatives), agreement may be more difficult to secure. Third, the informal nature of the enterprise makes

its stability dependent on the close personal relationships of specific individuals. Should they depart, presently agreed-on goals may not retain the institutional commitment of their agencies. The Puget Sound Water Quality Authority may also be capable of establishing long-range goals, but in so doing it is limited in several respects. In particular, because the members of the Authority have such diverse interests, any goals they can agree on are apt to be rather general and abstract. Moreover, neither the Authority nor many of its members have operational responsibilities in managing Puget Sound water quality. As a result of both these factors, the Authority may help develop consensus on broad goals, but probably will not choose to provide specific, operational guidance to individual agencies.

2. Public Involvement. To date, the Puget Sound Water Quality Management Program has maintained a fairly low profile. Non-member agencies, much less the interested public, seem generally unaware of the Program and in its aims. As the Program assumes an increasingly important decisionmaking role, it will need to establish a more visible identity and image with other agencies and the public to build understanding and marshall support for its activities. Except for individual agency hearings on specific permit applications and the like, the Puget Sound Water Quality Authority at present offers the main avenue for public involvement in the establishment of Puget Sound Water Quality policy. Indeed, providing an opportunity for public involvement may be the Authority's most valuable role. However, to attract participation and to satisfy participants, the Authority must develop some ability to influence the individual agencies. At present it lacks leverage, other than the

power to make recommendations to the Washington Legislature and to influence public opinion through its reports. Unless and until the Authority develops clout, it cannot provide a fully satisfactory forum for public involvement. Its evolution into a board of directors vis a vis the Puget Sound Water Quality Program could be extremely helpful in this regard. Besides providing a forum for public participation, the Authority could also play a major role in educating the public on Puget Sound water quality issues--though the issuance of reports, development of displays and exhibits, and establishment of educational programs in schools and other institutions.

3. Coordinated Research Needs. At present, the Puget Sound Water Quality Management Program is the primary means for establishing a broad-based, non-agency-specific water quality research agenda. Individual agencies such as NOAA, of course, have detailed research agendas for their own programs. As among EPA, WDOE, and DSHS, the Program and its Steering Committee appear to have been effective in coordinating research needs. A major deficiency is the much weaker linkage from the Program to the research-producing subunits of other agencies and to the academic research community. Expanded participation on the Steering Committee or a research priorities subgroup could help fill this gap. Research commitments could also be usefully incorporated in the SEA for Puget Sound water quality.

4. Focusing of resources. While a number of complementary efforts have been undertaken on an ad hoc basis, present arrangements do not regularly focus resources across agencies on problems of common concern. In principle, the State-EPA Agreement would seem to be a logical mechanism

for performing this function. But in practice, the SEA tends instead merely to ratify resource allocation decisions made elsewhere. At present, the main vehicle for focusing resources across agencies is the Puget Sound Water Quality Management Program. During the current year, the Program has assembled a package of nearly $1,000,000, mostly from EPA Headquarters. WDOE has also allocated state general funds to the Program and has given high priority to Puget Sound water quality in allocating its federal grants. The Steering Committee has allocated these funds to studies and analyses to address priority issues. As the Program is expanded to include additional agencies, it could perhaps help focus the resources of these agencies as well.

5. Review of Individual Agency Policies. No element within the present constellation of institutional arrangements engages in comprehensive review of individual agency policies. As the Puget Sound Water Quality Management Program moves to establish a decisionmaking agenda, however, it would review agency policies as part of that process.

6. Regulatory/Decisionmaking Functions. Regulatory and decisionmaking functions are at present largely held independently by the various agencies. One exception is the joint decisionmaking exercised by EPA, WDOE, and DSHS in identifying priority issues and allocating Program funds through the Steering Committee. A second is the limited control exercised by EPA and DOE through the SEA process in allocating grant funds, especially to local governments. A strengthened Puget Sound Water Quality Management Program would establish a decisionmaking agenda. Absent new legislation, however, agency compliance with Program decisions would depend on good will.

7. Decisionmaking Effectiveness. The Steering Committee seems to be fairly effective in securing agreement between EPA, WDOE, and DSHS on how Puget Sound water quality problems should be addressed. However, the present system provides no regular means of securing agreement within the broader circle of responsible and interested agencies. An expanded Puget Sound Water Quality Program would move in this direction.

Implementation Barriers

Because all elements of the status quo are in place, there are no implementation barriers to the system as it now stands. However, two barriers do operate to constrain constructive evolution. First, the Steering Committee lacks incentives to induce agreement on the part of other agencies as to the Program's policy priorities. Second, the Puget Sound Water Quality Authority lacks leverage to influence the behavior of individual agencies. Until it develops informal influence, perhaps through a record of legislative support for its recommendations, the Authority's impact could be marginal.

Evaluation

The present system has a number of strengths. First, it is in place, up and running. The Management Program and Steering Committee, in particular, seem to be effective in identifying priority issues and focusing resources on developing a better understanding of them. Second, the Program's informal structure should enable it to adapt and evolve, to concentrate on addressing issues rather than following bureaucratic routines. But the present system also has important weaknesses. None of its elements as yet has much effect on policy beyond the tight circle of EPA, WDOE, and DSHS. Because the Puget Sound Water Quality Management Program is informal and dependent on existing close personal relationships, its durability is not guaranteed. While the State-EPA Agreement could be strengthened, it has at present become something of a pro forma exercise, at least for purposes of fostering agreement on policy. And the Puget Sound Water Quality Authority as yet lacks leverage to influence agency decisionmaking.

5.2 PUGET SOUND INTERAGENCY MANAGEMENT GROUP

A Puget Sound Interagency Management Group would be modeled in part on the Columbia River Water Management Group, which consists of representatives from each of the federal agencies involved in water quality management along the Columbia, as well as representatives from each of the states in the Columbia Basin. The analog for Puget Sound water quality management would consist of one member from each of the federal and state agencies described in Chapter 3. It would meet monthly to exchange information among the agencies on emerging policy issues, research needs, and water quality management strategies. Chairmanship would alternate between EPA and WDOE. The Group would not have its own staff or budget, but would rely on the chairing agency for staff and logistical support.

Evaulation by Criteria

1. Long-Range Goals. The Interagency Management Group would probably achieve only limited success in establishing an agreed-upon set of long-range goals, for two reasons. First, most of the individual

agencies would not have adequate incentives to agree to a set of goals established by the Group. Second, as a procedural matter the Group would lack an action-forcing device to prompt agreement on such goals, such as a statutory requirement to prepare a long-range plan or issue an annual report.

2. Public Involvement. The Columbia River Management Group makes little provision for public participation. Attendance at meetings by non-members is rare. While meetings of the Puget Sound Management Group could be publicly announced, and open to the public, public interest seems apt to be slight unless the Group develops into a decisionmaking body, which seems unlikely.

3. Coordinated Research Needs. The Management Group could certainly provide a forum for each agency to explain its own research needs to the other members. But as in the case of establishing long-range goals, the Group's members would lack the individual incentives to submit its research agenda to collective review. And the Group as a whole would lack a procedural device to prompt collective decisionmaking on research needs.

4. Focusing of Resources. Similarly, the Group would lack the authority to collectively focus the resources of individual agencies on particular problems. Through discussion of agency priorities, however, the Group could possibly build a common understanding and perspective that over time could lead to mutual adjustments in resource allocation priorities within the various agencies.

5. Review of Agency Policies. The Group would lack the authority to review individual agency policies. It could, however, serve as a forum for each agency to explain its policies, recount its experience in

implementing them, and state any problems it might have with the policies of other agencies.

6. Regulatory/Decisionmaking Functions. Regulatory and decisionmaking authority would as at present rest with the individual agencies.

7. Decisionmaking Effectiveness. The Group would essentially serve as an area for the exchange of information among agencies. As such, it could help build mutual understanding and foster minor changes in the decisions of individual agencies more in line with the informal consensus among agencies than otherwise would be the case. But such a Group would not have the capacity to make collective decisions binding on individual members.

Implementation Barriers

A Puget Sound Interagency Management Group would be relatively easy to establish. It would not require legislation or additional staff or funds. The major barrier to implementation would be in securing the commitment of senior managers in each agency necessary to make the Group go: both initially by agreeing to join the Group, and later by actively participating in meetings.

Evaluation

The major advantage of a Puget Sound Interagency Management Group is the relative ease and low cost of establishing it. The major disadvantage is the uncertainty that it would accomplish much beyond facilitating a general exchange of views among the agencies. The Columbia River

Interagency Management Group seems to work fairly well because the federal agencies in particular have a strong interest in sharing information so they can exercise their operational responsibilities in managing the Columbia. That sort of concrete, operational interest seems to be lacking in Puget Sound water quality management.

5.3 PUGET SOUND PROGRAM

Analogous to the EPA's Chesapeake Bay Program, the Puget Sound program would aim to develop a comprehensive understanding of the Puget Sound ecosystem. With the advice of a Management Committee co-chaired by EPA and WDOE, and representing the interested and responsible federal, state, local, and tribal agencies, EPA would allocate a separate package of federal funds to a series of research projects addressing priority issues over a period of four to six years. (Because current knowledge about the Sound is more complete than knowledge about Chesapeake Bay at the outset of its Program, the funds involved would be considerably smaller.) With express Congressional sanction and a very substantial appropriation, this Program could be considered a separate, new institution. Alternatively, simply through the provision of federal dollars, it could be grafted onto the evolving status quo and managed by the Puget Sound Water Quality Management Program.

Evaulation by Criteria

1. Long-Range Goals. At least initially, the Puget Sound Program would not be intended to establish long-term goals per se. Rather, by providing the agencies with an opportunity to share in the allocation of

federal research funds, it would invite their participation in the identification of priority issues, the commissioning of research to address the issues, and the review of results. However, this process could foster personal and institutional relations, and common understanding, that could ultimately lead to convergence among the agencies on long-range goals.

2. Public Participation. As in the case of the Chesapeake Bay Program, EPA could use a portion of federal Program funds to sponsor an independent public participation program. With its own funding and a well-defined purpose--providing an avenue for public advice in the identification of priority issues--such a program could enhance public involvement in Puget Sound water quality management.

3. Coordinated Research Needs. Establishment and execution of a research agenda would be the core purpose of the Puget Sound Program. The opportunity to participate in the allocation of additional federal funds would help ensure the active participation of the various agencies. An agreed-upon research agenda is the likely result. While the individual agencies would still be free to pursue their own research agendas independently, participation in the Program could help create shared perspectives, and therefore engender a better fit among individual agency research programs.

4. Focusing of Resources. The experience of the Chesapeake Bay Program strongly indicates that a Puget Sound Program could effectively focus the funds appropriated by Congress to the Program. To replicate this success, it is especially important that the Puget Sound Program first identify priority issues so that Program resources can be targeted

to better understanding them. Otherwise, there could be a tendency to dissipate these resources across a range of unrelated research projects favored by individual agencies. To the extent this process builds consensus among the agencies about the critical issues, it could also facilitate the focusing of individual agency resources on those issues.

5. Review of Agency Policies. The Puget Sound Program would not review individual agency policies except as necessary to identify priority issues and settle on research needs to address them.

6. Regulatory/Decisionmaking Functions. Except for decisionmaking about the allocation of Program resources, regulatory and decisionmaking authority would continue to be held by the individual agencies, as under the status quo.

7. Decisionmaking Effectiveness. A Puget Sound program could contribute to more effective decisions in at least three ways. First, the decisions of the Program itself, through the advice of the Management Committee, would represent constructive, collective choices in identifying key issues and directing resources to better understanding them. Second, the regional perspective gained through this process could result in individual agency decisions that took this perspective into account. Third, the Program might evolve into a vehicle for making collective decisions about long-range goals and water quality management strategies.

Implementation Barriers

The main barrier to implementation is the need for federal legislation or at least a substantial commitment of federal funds. Even though a Puget Sound Program could operate effectively at much lower funding levels than that allocated to Chesapeake Bay, these may be difficult to obtain. Federal resources are generally scarce at present. Moreover, there is no sense of crisis or even particular urgency in addressing Puget Sound water quality. Assuming the necessary legislation and funds were forthcoming, they would encourage but still not guarantee the constructive participation of all key agencies.

Evaluation

The greatest strength of a Puget Sound Program arises from its having an attractive, concrete purpose: allocation of federal research funds. This mission would give the agencies a shared interest in participation. And the process could help foster a common perspective on the priority issues facing the Sound. The greatest weakness of this option is the difficulty of obtaining Congressional sanction and federal funds.

5.4 PUGET SOUND WASTE DISPOSAL AUTHORITY

A Puget Sound Waste Disposal Authority would be modeled on the Gulf Coast Waste Disposal Authority described in Chapter 4. It could also be thought of as a "super-Metro," similar in form and function to the Municipality of Metropolitan Seattle, but encompassing the entire Sound region. Such an Authority would construct, own, and operate sewage treatment plants and interceptors for all sewage districts otherwise discharging into the Sound and provide industrial waste treatment facilities. It would also address stormwater runoff problems in cooperation with local government. It could be governed as is the Gulf Coast Authority by a board of directors of appointed members representing the counties in its jurisdiction. Or it could be governed by the same sort of council that directs Seattle Metro, consisting of elected or appointed representatives from the cities, counties, and unincorporated areas in the Authority's service area.

Evaluation by Criteria

1. Long-Range Goals. A Puget Sound Waste Disposal Authority would be required by its enabling statute or the political debate surrounding its formulation or both to prepare a comprehensive sewage treatment plan for the Sound. This requirement, and the Authority's focused mission, should enable it to set long-range water quality goals, at least insofar as water quality is affected by waste water discharge.

2. Public Involvement. Like the San Francisco Bay Conservation and Development Commission, Seattle Metro was established only through the sustained efforts of citizen activists who believed strongly in the importance of creating such an institution. In both cases, intense public involvement carried over into the actual operations of the agencies once established. A Puget Sound Waste Disposal Authority could well follow the same path. Because its establishment would require a similar political effort, not just at the state level but in the constituent cities, counties, and unincorporated areas, the Authority would begin life with a preexisting corps of political supporters. Any mechanism established for public involvement would tap this interest in participation.

3. Coordinated Research Needs. Like Metro, the Authority would establish and execute its own research agenda. Because the Authority would represent all localities within its geographic jurisdiction, it

would serve as a vehicle for coordinating their research needs (and for executing research too expensive for any but the largest jurisdictions to fund individually). The Authority would not itself serve as a means of establishing a common research agenda with the principal federal and state agencies. However, it would bring to deliberations with these agencies a strong, unified voice representing the perspective of localities.

4. Focusing of Resources. The principal purpose of the Authority would be to focus local government resources on waste water treatment and related activities more efficiently than could the local governments themselves. As the examples of both the Gulf Coast Authority and Seattle Metro indicate, it could be quite effective in doing so. Other than as a new and powerful participant in interagency deliberations, however, the Authority would not have a role in helping to focus the resources of other agencies.

5. Review of Agency Policies. The Authority would review the policies of other agencies only for its own information and to ensure that its own activities did not conflict with any applicable regulatory requirements.

6. Regulatory/Decisionmaking Functions. Through its Council, the Authority would exercise decisionmaking functions with respect to the siting, financing, construction, and operation of sewage treatment facilities within its jurisidiction and also with respect to related activities such as monitoring and research. The Council could also be authorized to exercise the regulatory authority over water quality and waste treatment otherwise exercised by its constituent local governments. For the rest, regulatory and decisionmaking functions would be performed as under the status quo.

7. Decisionmaking Effectiveness. Because of its specific, concrete mission, its financial resources, and its formal powers, the Authority should be effective in reaching decisions about water quality goals and the siting and construction of sewage treatment facilities. The Authority would also bring a strong voice, comparable to EPA's and WDOE's, to interagency deliberations in the Puget Sound Water Quality Program.

Implementation Barriers

Establishment of a Puget Sound Waste Disposal Authority would almost certainly require new state legislation. While in theory such an Authority could be created under the same enabling legislation that authorizes the formation of "metropolitan municipal corporations" such as Seattle Metro, that statute gives particularly heavy representation on the Council to the "central city" and the "central county" (i.e., the most populous city and county within the metropolitan jursidction). Giving such powers to Seattle and King County in a Puget Sound-wide Authority would be unacceptable to other localities. Therefore a new enabling statute would be required. Puget Sound water quality may not be an issue of sufficient urgency to attract the necessary support for such a statute in the legislature.

Equally problematic are the constituent local governments. Some if not many may be reluctant to participate. Enabling legislation that required their individual approval could result in an Authority with patchwork boundaries or less that Sound-wide jurisdiction. Legislation that required participation without individual approval, even if constitutional, would be commensurately difficult to enact.

Once established, the Authority might be unwieldly to govern and operate. Both Metro and the Gulf Coast Waste Disposal Authority are geographically compact. Integration of a Sound-wide waste disposal system could be physically and politically difficult.

Evaluation

The greatest strength of a Puget Sound Waste Disposal Authority would be in establishing a Sound-wide governmental unit with the resources, representation, and mission to sharply focus a critical set of water quality management activities. Its main weaknesses are the difficulty of establishment and, possibly, operational problems.

5.5 PUGET SOUND WATER QUALITY COMMISSION

A Puget Sound Water Quality Commission would be a federal-state entity established by a compact between Washington and the United States. Thus it would be analogous to the Delaware River Basin Commission described in Chapter 4. The Commission would be governed by two commissioners, one each from the federal government and Washington state. In developing positions, each commissioner would secure the clearance of individual agencies through separate federal and state interagency advisory councils. The Commission would develop and adopt a comprehensive Puget Sound water quality plan binding on all federal and state agencies. The Commission's approval would be required for any public or private project that could have a substantial effect on the Sound's water quality. The Commission would have its own independent staff and a budget derived from federal and state appropriations on a 50-50 basis.

Evaluation by Criteria

1. Long-Range Goals. Establishment of long-range goals through development of a comprehensive plan would constitute the compact's principal mission. However, the experience of the Delaware River Basin Commission suggests that the establishment of such a plan could be difficult. To secure federal approval of the compact, some provision would probably have to be made for requiring the federal commissioner to obtain concurrence from the individual federal agencies on the commissioner's positions. But in developing the comprehensive plan, the federal commissioner may be unable to obtain concurrence for a single position. Even if the Washington legislature were willing to give the state commissioner the power to override individual state agency objections, the inability of the federal commissioner to state a unified federal position would greatly complicate if not preclude establishment of a plan.

2. Public Involvement. There is no reason in principle why the Commission could not attract public involvement through attendance at its meetings, the formation of advisory councils, and the like. However, there appears to be no groundswell of public opinion favoring formation of such a body on which these efforts could build. Unless some interest can be generated in the process of establishing the Commission or developing the comprehensive plan--e.g., through some quick progress early--intensive public participation seems problematic.

3. Coordinated Research Needs. Establishment of a research agenda would not be central to the Commission's mission. However, to the extent the Commission attempted to set such an agenda, the same difficulties that

could be expected to bedevil long-range planning generally would likely arise in this context as well.

4. Focusing of Resources. To focus resources, the Commission must first identify a clear set of priority goals and issues through establishment of a long-range plan. Even if the Commission could establish such a plan, its ability to focus resources would be subject to the same centrifugal tendencies that impede agreement on the goals themselves. The individual agencies, especially the federal agencies, seem unlikely to submit their resource allocation decisions to direction by the Commission. Nor will they incline toward providing the Commission with its own resources to perform the functions they would prefer to perform individually.

5. Review of Agency Policies. Except in the context of reviewing individual project proposals, the Commission would not be in a position to seriously scrutinize individual agency policies. The Commission might examine such policies in the process of attempting to adopt a comprehensive plan, but would probably tend simply to incorporate individual agency policies in the overall plan.

6. Regulatory/Decisionmaking Authority. In theory, the Commission would have the authority to adopt a comprehensive plan and enforce it through required approval of all projects for consistency with the plan. In practice, this authority is apt to be constrained by the practical veto power of the individual agencies. The Commission might also assume the regulatory powers now held by EPA, WDOE, and the Corps of Engineers. Assumption of such powers would have to be carefully spelled out in the compact itself and in federal and state legislation.

7. Decisionmaking Effectiveness. The effectiveness of the Commission as a decisionmaking unit would probably be constrained by the reluctance of individual agencies to cede authority to the Commission. If they supported a strong decisionmaking role for the Commission, it would have the capacity to be an effective decisionmaker.

Implementation Barriers

Development of the necessary compact would require protracted negotiations both among the federal and state agencies and between the federal government and Washington State. Interstate compacts are notoriously difficult to negotiate. There is little reason to expect easy negotiation in this case--on the contrary since so many agencies' interests are at stake, negotiation should prove difficult. Once signed, the compact would require ratification by Congress and the Washington Legislature. Ratification, too, rarely goes quickly or smoothly. A particular complication in this case could be a multiplicity of committee jurisdictions since the interests of so many agencies would be affected. Finally, once established the Commission would require significant operating funds from both the state and federal governments. Since these funds are apt to come at the expense of individual agencies, resistance may be expected.

Evaluation

The greatest strength of a Puget Sound Water Quality Commission lies in tying the Federal and State governments together in a single unit responsible for setting policy. The greatest weakness is the possible inability of the commissioners to deliver the individual agencies--in which case policy will be no better focused than it is under the status quo.

5.6 PUGET SOUND PROTECTION AGENCY

A Puget Sound Protection Agency would be a Washington State super agency. It would assure responsibility for all Puget Sound water quality related missions of WDOE, DSHS, the Department of Fisheries, the Department of Game, and the Department of Natural Resources. In short, it would be the sole state agency with regulatory authority for water quality protection of the Sound.

Evaluation by Criteria

1. Long-Range Goals. The Agency should be very effective in establishing a unified state position on water quality goals for the Sound. However, because the Agency's responsibilities would be primarily regulatory, it would still have to reach agreement with state agencies having other interests in the Sound's water quality--for example, the resource enhancement components of the Departments of Fish and Game. (Of course, in principle it would be possible to merge these activities into the Agency as well.) And the Agency would still have to reach agreement with the federal agencies on goals. But the State could speak with a stronger, more unified voice in these negotiations.

2. Public Involvement. The Agency could provide a useful focal point for public involvement--it would offer a "one-stop shopping" place

for all the publics with particular interests in the Sound's water quality. The Agency's substantial regulatory and decisionmaking powers would tend to attract their attention. Of course, the effectiveness of public involvement would depend on the particular public participation mechanisms adopted by the Agency.

3. Coordinated Research Needs. The Agency should be effective in coordinating State research needs. As in the case of establishing long-range goals, agreement with the Federal agencies (especially EPA and NOAA) would be required. But this process would be easier with the State speaking through the single voice of the Agency.

4. Focusing of Resources. Probably the greatest appeal of a Puget Sound Protection Agency derives from its ability to focus state resources (including federal funds made available to the state) on those areas requiring most attention. The Agency would also be more persuasive then the current mix of state agencies in influencing the resource allocation decisions of the federal agencies.

5. Review of Agency Policies. Because the Puget Sound Protection Agency would replace those components of other state agecies now responsible for Puget Sound water quality management, it would eliminate much of the need to review the policies of these state agencies.

6. Regulatory/Decisionmaking Authority. The Agency would become the sole regulatory/decisionmaking unit at the state level, with all the regulatory authority over Puget Sound water quality management now exercised by the individual agencies. Non-regulatory decisionmaking at the state level and all federal regulatory and decisionmaking functions would remain constituted as under the status quo.

7. Decisionmaking Effectiveness. Establishment of the Agency should greatly improve the effectiveness of Washington State government in reaching decisions bearing on the Sound's water quality. By easing the complexity of coordinating with the federal agencies, it should also improve decisionmaking more generally.

Implementation Barriers

Establishment of a Puget Sound Protection Agency would require state legislation. The individual agencies affected and their legislative allies could oppose such a measure. Uncertainty about which functions to include and which to exclude would further complicate the legislative process. Once established, considerable disruption in agency business would extend through a transition period of a year or more. Some inefficiency would also probably result from overlaps with the capabilities of the agencies whose functions are partially absorbed.

Evaluation

The greatest strength of a Puget Sound Protection Agency would be in rationalizing Puget Sound water quality management at the state level. The greatest weaknesses are the very strong barriers to implementation.

6.0 CONCLUSIONS

While this examination of institutional options does not purport to be definitive, it does support several reasonably firm conclusions.

First, the various interested and responsible agencies do need to coordinate their policies with respect to the Sound's water quality. Decisions interact strongly across geographic jurisdictions, environmental media, and agency interests.

Second, present arrangements do provide a degree of policy coordination. The Puget Sound Water Quality Management Program in particular has already contributed to agreement on priority issues and research needs among EPA, WDOE, and DSHS. The Program and its Steering Committee appear to be evolving along a constructive path.

Third, however, present arrangements are not fully adequate. Because other agencies do not participate in the Puget Sound Water Quality Management Program, apparent consensus may unravel when the Program begins to devise regulatory or other strategies to address priority issues. The other agencies may object to these strategies. They may also raise issues that the Steering Committee has neglected. In addition, even the agreement among EPA, WDOE, DSHS may dissolve over time, because present agreement appears to depend heavily on personal understandings among particular individuals.

Fourth, therefore, some additional measures should be considered to involve other key agencies and give the evolving process more institutional permanance.

Fifth, of the institutional options considered in Chapter 6, none is completely appropriate. A Puget Sound Interagency Management Group, while comparatively cheap and easy to establish, is unlikely to have much impact. A Puget Sound Water Quality Commission (federal-state compact) would probably be both difficult to establish and not very effective. A Puget Sound Waste Disposal Authority or a Puget Sound Protection Agency could improve policy coordination among local and state agencies, respectively. But they would do relatively little to improve policy coordination with and among the federal agencies. And they would be extremely difficult to implement absent a much greater sense of urgency than now exists.

Sixth, constructive evolution in the status quo is the single most attractive option. A combination of expanded participation and a stronger decisionmaking role for the Puget Sound Water Quality Management Program; an annual federal-state-local-tribal agreement analogous to the SEA but focused specifically on Puget Sound water quality; and a Puget Sound Water Quality Authority capable of educating the public, building consensus, and providing general guidance would provide a fairly comprehensive framework for policy direction. While implementation barriers are significant, this option would be far easier to implement than the others. Moreover, it could be built gradually, over time.

Seventh, a Puget Sound Program merits some serious consideration. This option shows promise of drawing in other agencies and creating a broader common understanding and regional perspective. After a four to six year evolution, agency relationships could then be reassessed. By that point, development of a common perspective could have reduced the need for ambitious institutional fixes. Obtaining the requisite federal mandate and dollars to inaugurate the Program would not be easy--but this task would still not be as difficult as establishing a federal-state compact, a waste disposal authority, or a state super agency.

Eighth, some additional supplementary measures should also be considered. These are not full-fledged institutional options, but they could be constructive. For example:

Issue an annual State of the Sound report. Either the Puget Sound Water Quality Authority or EPA jointly with WDOE could issue an annual report describing the state of Puget Sound's water quality, including priority issues, research needs, regulatory strategies, and results in the past year. Models of this type of report at the national level are the Council on Environmental Quality's annual report *Environmental Quality* and the annual report of the Council of Economic Advisers. Such a report should be clearly written, attractively bound, and widely distributed. The PSWQA's enabling statute could be amended to require such a report, giving it greater prominence and stability, but this would not be absolutely necessary.

Such a report would be a useful vehicle for providing public information. But it would also be a mechanism for policy coordination. All responsible and interested agencies would have a strong incentive to contribute information about their programs and priorities to make sure their story was accurately told in a highly visible public document. Similarly, the process of providing comments on the initial draft's choice of priority issues, research needs, regulatory strategies, and interpretation of results would tend to produce compromise and agreement--all the more so if the various agencies were actually required to sign the document, but this is probably not necessary.

Hold annual scientific symposia.

The Puget Sound Water Quality Authority or EPA and WDOE could sponsor a yearly symposium for the presentation of scientific papers and discussion of research needs addressing Sound water quality issues. Individual sessions or panels at the symposium could focus on issue areas identified by the Authority and the proceedings bound and distributed, perhaps as an appendix volume to an annual report. Presenters and discussants should include representatives from the various agencies, researchers on contract to them, and other members of the Sound's scientific community.

Such a symposium would provide an efficient and enjoyable means of sharing information about research results and needs among all interested and responsible agencies. It would serve as a way of tapping the expertise of academic specialists without formal ties to government. And it could lead to consensus on technical issues, or at least better define the disagreements and uncertainties. Because researchers are ordinarily quite anxious to participate in such conferences, broad representation should be relatively easy to achieve.

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PERSONS INTERVIEWED

CORPS OF ENGINEERS
    Steve Martin (Commencement Bay permits)
    Fred Weinman (works with, suggested by Martin)

DEPARTMENT OF ECOLOGY
    Tom Elwell
    Glen Fielder
    Carol Fleskes
    Jim Krull
    Bob Monn
    Dan Petke
    Bob Saunders
    Chris Smith
    Greg Sorlie
    Joan Thomas
    Phil Miller

ENVIRONMENTAL PROTECTION AGENCY
    Gary O'Neal
    John Underwood

DEPARTMENT OF FISHERIES
    Russ Cahill

DEPARTMENT OF NATURAL RESOURCES
    Dave Jamison
    Craig Partridge
    Steve Tilley

DEPARTMENT OF SOCIAL AND HEALTH SERVICES
    Floyd Frost
    Ken Merry
    Jim Pluntze

METRO
    John Lampe

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
    Dr. Chen
    Howard Harris

OREGON WATER RESOURCE DEPARTMENT
    Chris Wheeler

PIERCE COUNTY HEALTH DEPARTMENT
    Derek Sandison
    Dr. Bud Nicola

PUGET SOUND COUNCIL OF GOVERNMENTS
    Pete Beaulieu

ASSOCIATION OF CITIES
    Chuck Mize

SNOHOMISH COUNTY HEALTH DEPARTMENT
    Dr. Clarice Hyatt

TACOMA (City)
    Mike Price

TACOMA (Port)
    Gary Kuczinski